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ABSTRACT

Described in a 5-year summary report is a demonstration project for training institution personnel to teach community adjustment behaviors to 71 moderately retarded institutionalized girls (IQ 25-55), ages 6- to 21-years-old. Discussed are training procedures (systematic application of positive and negative consequences, fading, and imitation) in the following areas: personal skills, including cleanliness, grooming, and appropriate sitting and walking; social skills involving speech, interpersonal relations, and attitudes; occupational skills such as home management and sheltered workshop-type activities; and educational skills including word recognition, writing, time-telling, counting, and arithmetic. Reviewed are the demonstration functions of the project, including publications, consultancies, and conventions. Seven appendixes include details of step by step training programs. (CL)

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DETAILED PROGRESS REPORT

A DEMONSTRATION PROGRAM FOR INTENSIVE TRAINING OF INSTITUTIONALIZED MENTALLY RETARDED GIRLS

Five-Year Summary

June, 1965 - July, 1970

U.S. Department of Health, Education and Welfare
Public Health Service, Grant No. MR 1 801 C69
Bureau of Child Research
University of Kansas
Parsons State Hospital and Training Center
Parsons, Kansas 67357

EC071320

U. S. Department of Health, Education and Welfare
Public Health Service, Grant No. MR 1 801 C69

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INTRODUCTION

The major objective of the project has been to implement and demonstrate sound psychological procedures for training and managing retarded girls. The specific objectives were:

1. To train the girls in such personal skills as cleanliness, grooming, sitting, and walking in ways that are appropriate to a noninstitutional community.

2. To train the girls in such social skills as speech, interpersonal relations, and attitudes.

3. To train the girls in such occupational skills necessary for taking care of a house and for doing simple repetitive work such as is found in a sheltered workshop.

4. To train the girls in educational skills as word recognition, writing, time-telling, counting, and arithmetic.

5. To train personnel at Parsons State Hospital and Training Center to apply the techniques for training patients.

6. To demonstrate to, and encourage personnel at other institutions to use these techniques.

The Mimosa project dealt with moderately retarded girls (IQ approximately 25 to 55). These girls are housed on three floors of a typical institutional building. The first floor, Mimosa "A", houses 16 girls between 6 and 12 years of age, the second floor, Mimosa "B", houses 27 girls between 12 and 16 years of age; and the third floor, Mimosa "C", houses 28 girls between 16 and 21 years of age. The programs on Mimosa "B" and "C" were initiated during the first two years of the project. Training programs for the 16 girls on Mimosa "A" were initiated during 1967.

The training procedures have all involved an attempt to select important behaviors for community adjustment and then to develop procedures for training based on sound learning principles. These procedures have most frequently involved the systematic application of positive and negative consequences, the use of fading procedures, and the use of modeling or imitation procedures.

PROGRAM DEVELOPMENT

This section is concerned with the initial steps in establishing reinforcement systems and training programs. A pilot study conducted by Girardeau and Spradlin[1] demonstrated that 27 Mimosa "B" girls could be managed and trained using positive reinforcement techniques. Girls who had previously remained idle for hours gradually became interested in such cottage chores as sweeping the steps, washing the windows, and making their beds when they were paid tokens, redeemable in merchandise. Girls who were placed in the psychiatric unit for several hours per week because they struck other patients, stopped striking other patients when they were rewarded for engaging in activities such as physical exercises and simple games. On the basis of this pilot study, the Demonstration Program for Intensive Training of Institutionalized Mentally Retarded Girls Grant was applied for and funded through the U.S. Department of Health, Education and Welfare.

Cottage Modification

Abstract

Critical to any training program is the physical facility in which the training occurs. Before intensive training could begin, remodeling was necessary. Mimosa cottage was built in 1931 to house adult epileptics and was not adequate to accommodate a changed population and training goals. To conduct the demonstration and training program it was necessary to adapt the space to the new goals. The following discussion describes modifications made on the three floors.

Mimosa "A"

An enlarged classroom facility was needed to carry out the academic instruction program. To accomplish this the following changes were made:

1. The south wall of the classroom was moved back approximately eight feet into the area designated "Aide Station."

2. Cabinets were removed from the "Aide Station" and the space was adapted to an observation-office room for the teacher.

---

[1] F. L. Girardeau and J. E. Spradlin, "Token Rewards in a Cottage Program, Mental Retardation Journal, 2 (December 1964), 345-352.

3. One area designated "Unit" was made into an "Aide Station" and was suitably equipped. The other area designated "Unit" became the new storage area to recapture the space lost when cabinets were removed from the old "Aide Station."

4. The office and classroom were carpeted and furnished.

During 1968, training programs were developed for Mimosa "A" residents. Additional modifications were required at this time. The areas were designed to provide physical conditions normally found in various areas of a home and/or nursery school. To provide opportunities for contact with a variety of sensory stimuli, five specific areas were delineated:

1. A dormitory consisting of 16 beds.

2. A carpeted living room partitioned by colored plastic room dividers and containing a four-piece sectional sofa, a pole lamp, and a television set.

3. A music area containing a table, record player, and piano.

4. A recreation area consisting of 2 tables, 16 chairs, and storage cabinets for toys, puzzles, games, blocks, dolls, and other play materials.

5. A playhouse area containing miniature sized replicas of equipment found in ordinary kitchens and dining areas.

See Exhibit 1 and 2 for the original and remodeled floor plans.

Mimosa "B"

The major goals of the modification of the floor were to create a model home area and to provide observation facilities. To achieve these purposes, it was necessary to displace considerable space which was then being used for storage.

1. The south and middle walls of the adjacent areas "Locker Room" and "Education Room" were removed. In one corner of the new area, cabinets and a sink were built as the nucleus of the kitchen area. The rest of the space was also suitably adapted for living room and dining room areas and furniture and appliances were purchased.

2. Cabinets, bins, and lockers were constructed in the room designated "Store" and "Clothing Room" to make up for the space lost in creating a living area.

Exhibit I

Mimosa "A" Original Floor Plan

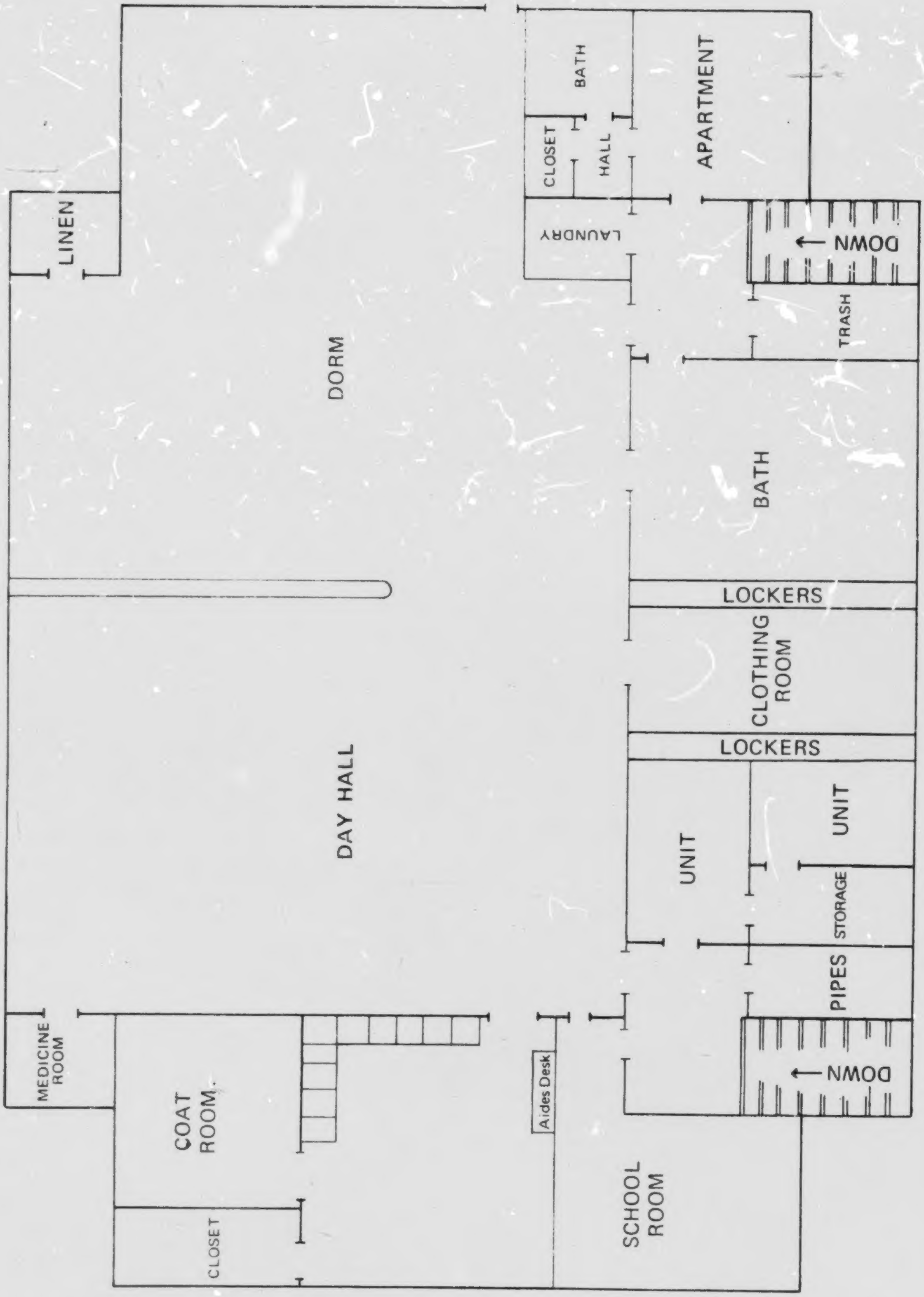
LINEN
DORM
DAY HALL
MEDICINE ROOM
COAT ROOM
CLOSET
Aides Desk
SCHOOL ROOM
BATH
CLOSET
HALL
APARTMENT
LAUNDRY
DOWN
TRASH
BATH
LOCKERS
CLOTHING ROOM
LOCKERS
UNIT
UNIT
STORAGE
PIPES
DOWN

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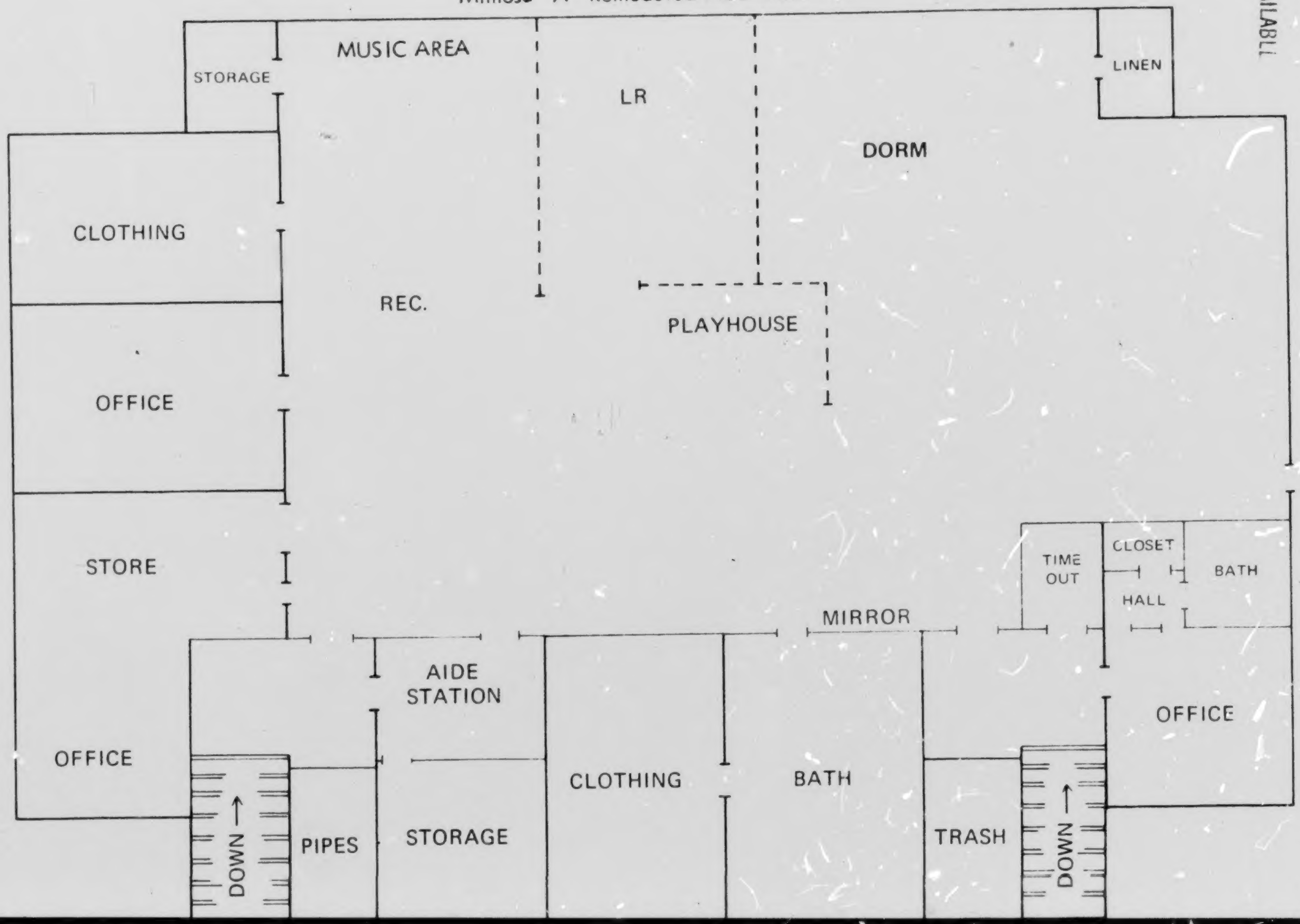
Exhibit 2

Mimosa "A" Remodeled Floor Plan


STORAGE
MUSIC AREA
LR
DORM
LINEN
CLOTHING
REC.
PLAYHOUSE
OFFICE
STORE
TIME OUT
CLOSET
BATH
HALL
MIRROR
AIDE STATION
OFFICE
OFFICE
CLOTHING
BATH
DOWN →
PIPES
STORAGE
TRASH
DOWN →

3. An observation booth was built which extended through the wall of the cottage separating the "Dorm" and "Day Hall" areas.

4. An "Aide Station" was built against the south wall of the cottage and extended beyond the observation booth.

5. Bunk beds were purchased to gain more useable floor space for program activities.

See Exhibit 3 and 4 for the original and remodeled floor plans.

Mimosa "C"

As was the case with the other two floors of the cottage, the nature of the proposed program dictated the modification of the space. It was necessary for training purposes to have a kitchen, dining, and living room area. It was also necessary to create space for sewing, ironing, dancing, playing games, and shaping individuals or small groups.

1. The south wall of the area marked "Coat Room" was removed so that a kitchen, dining, and living room area could extend from the north wall, in a line, into the dormitory area.

2. The bathroom and laundry area was divided by a wall so that half the area could be used for washing, drying, and ironing training areas.

3. The west end of the dormitory area was walled off to become a storage area. Cabinets and coat racks were built to provide the storage space lost by previous modifications.

4. The area designated "Clothing Room" became the office and laboratory space.

5. Bunk beds were purchased to save additional floor space. Furniture and appliances were purchased for the living, dining, and kitchen areas.

6. A movable observation booth was built so that observations could be made from any location on the top floor.

See Exhibit 5 and 6 for the original and remodeled floor plans.

Exhibit 3

Mimosa "B" Original Floor Plan

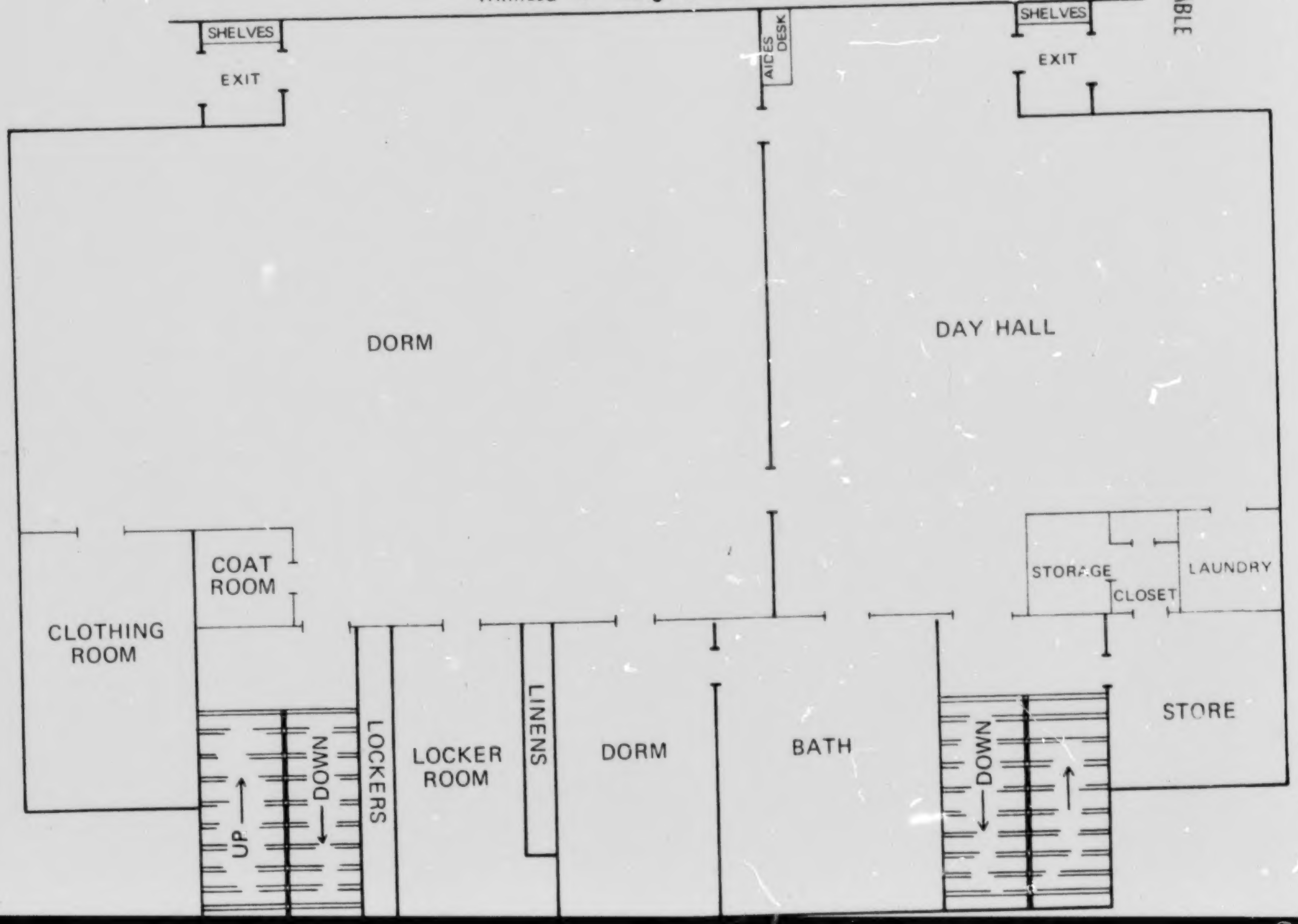

SHELVES
EXIT
AIDES DESK
SHELVES
EXIT
DORM
DAY HALL
COAT ROOM
CLOTHING ROOM
STORAGE
CLOSET
LAUNDRY
UP
DOWN
LOCKERS
LOCKER ROOM
LINENS
DORM
BATH
DOWN
STORE

Exhibit 4

Mimosa "B" Remodeled Floor Plan

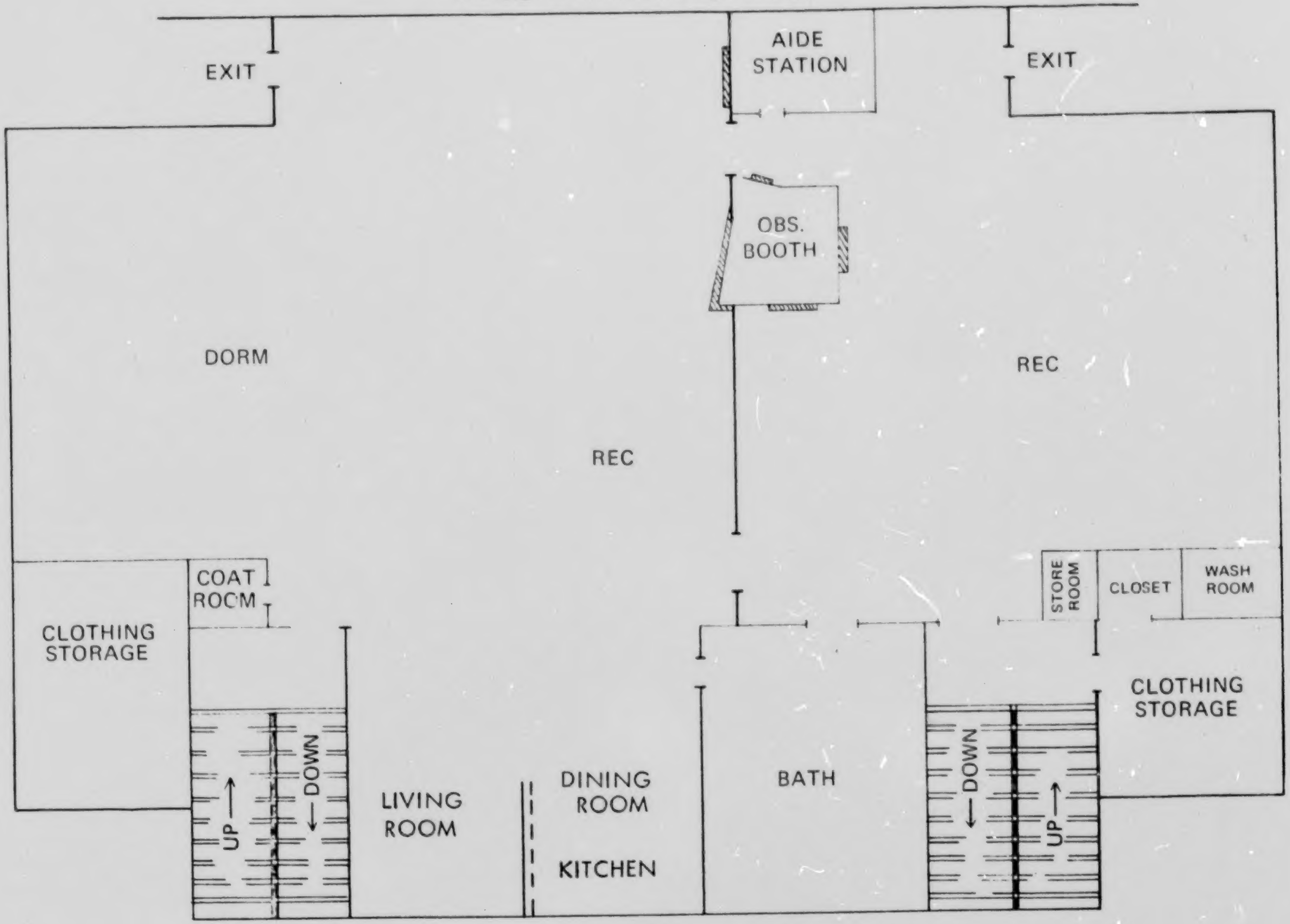

EXIT
AIDE STATION
EXIT
OBS. BOOTH
DORM
REC
REC
COAT ROOM
STORE ROOM
CLOSET
WASH ROOM
CLOTHING STORAGE
CLOTHING STORAGE
UP
DOWN
LIVING ROOM
DINING ROOM
KITCHEN
BATH
DOWN
UP

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Exhibit 5

Mimosa "C" Original Floor Plan

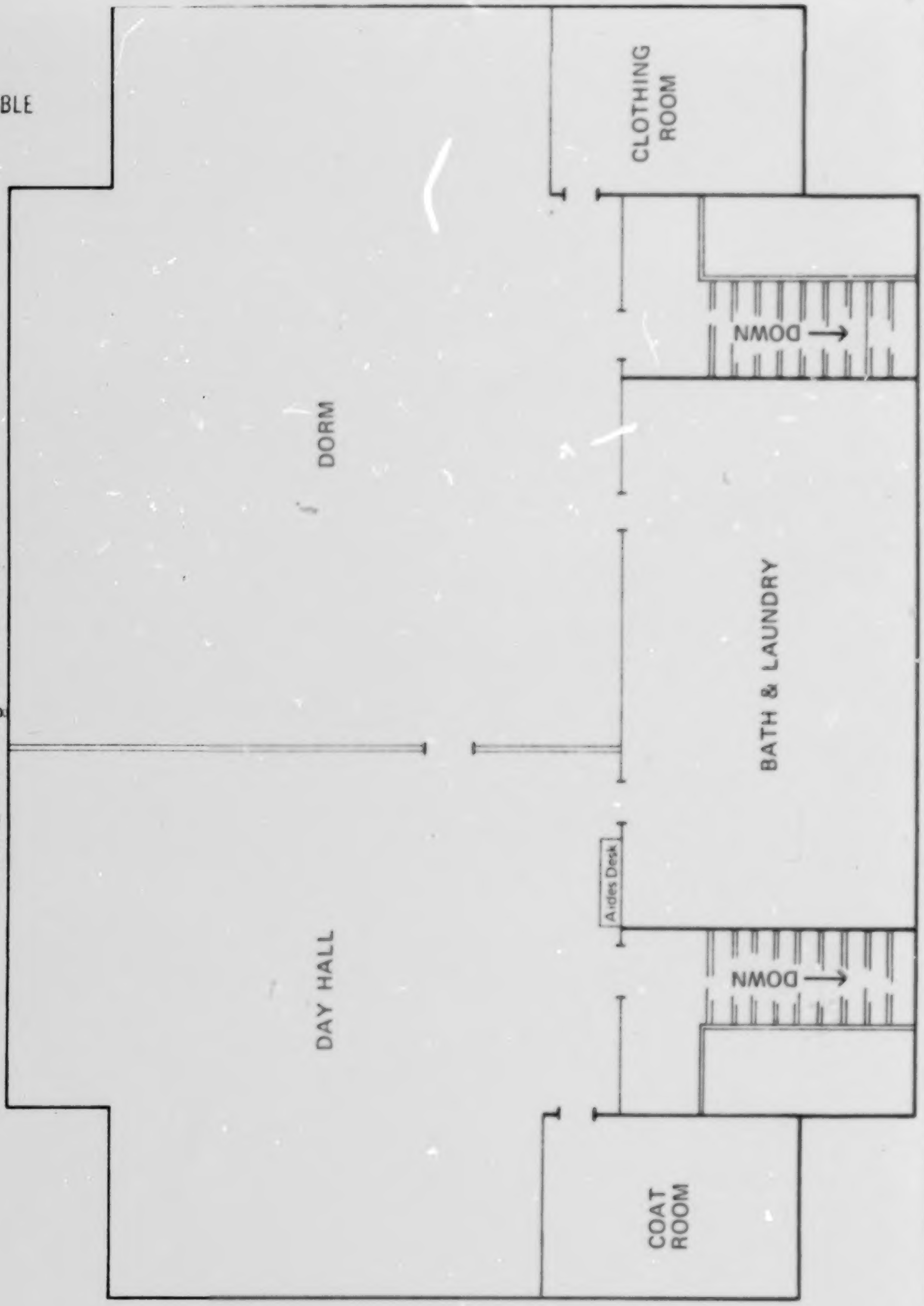
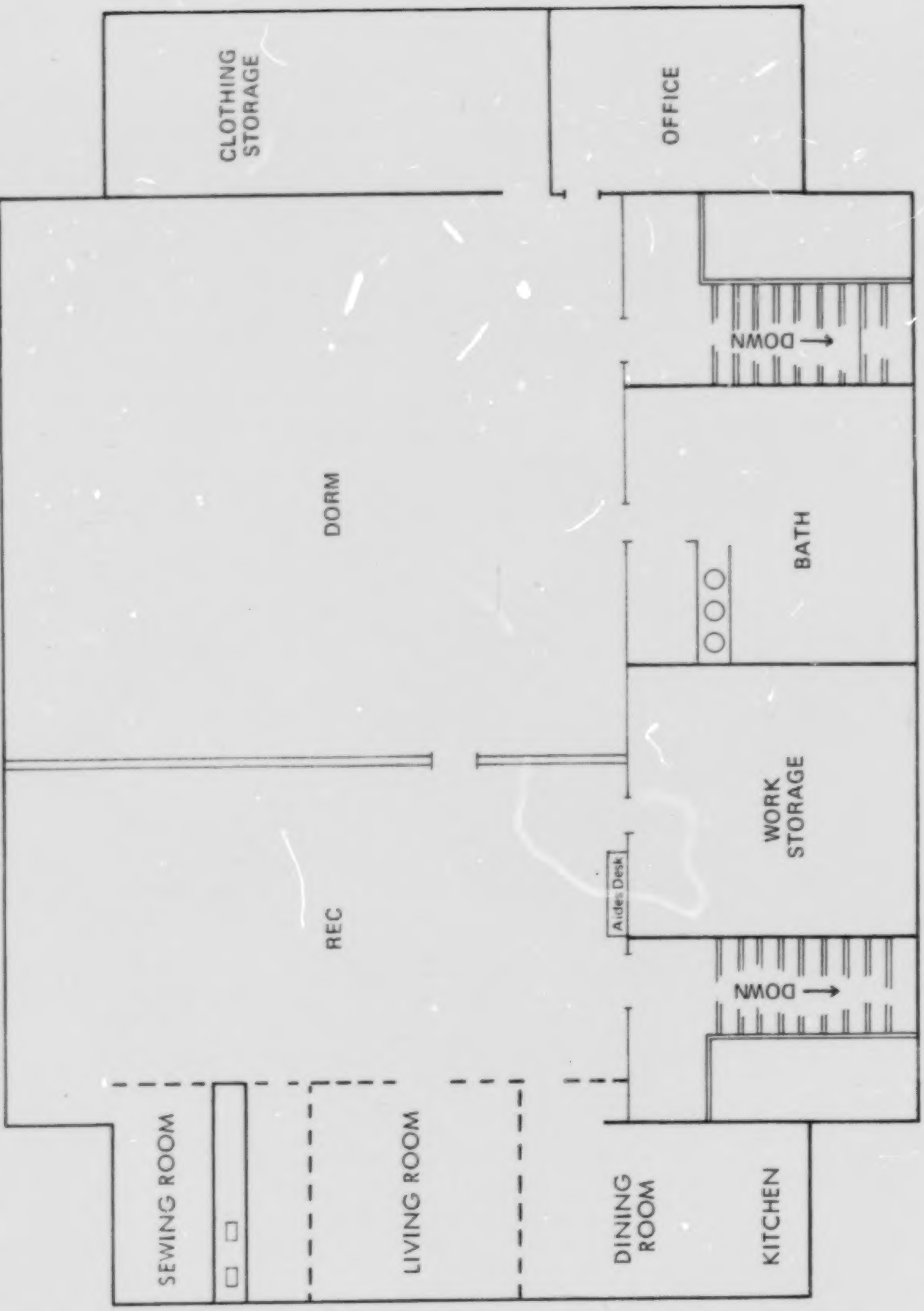

CLOTHING ROOM
DOWN
DORM
BATH & LAUNDRY
Aides Desk
DAY HALL
DOWN
COAT ROOM

Exhibit 6 Mimosa "C" Remodeled Floor Plan


CLOTHING STORAGE
OFFICE
DORM
DOWN
BATH
WORK STORAGE
Aides Desk
REC
DOWN
SEWING ROOM
LIVING ROOM
DINING ROOM
KITCHEN

Devising and Implementing Programs

The primary purpose of the Mimosa program was to train the girls for life outside of an institution. There are two general ways in which this may be accomplished. First, some of the girls may be able to return to their parents if their behavior is modified in ways which are more acceptable to the family. Secondly, some of the girls may be able to make a semi-independent adjustment. Essentially, this means preparing the child for useful employment and providing for close supervision of nonworking hours by persons other than the natural family.

The second purpose of the Mimosa program was to train the girls to make a more independent adjustment to institutional life. This did not mean, however, that institutional traditions were accepted. Rather, the standards of the community were deemed as appropriate to institution life. As a result, there was no functional conflict in training the girls for these two purposes.

Programing for Mimosa "C"

Abstract

A list of behaviors deemed critical to community acceptance was compiled. Using this list, baseline data were collected and analyzed. The first step in establishing training programs was to institute the reinforcement system. The components of the reinforcement system were: 1) giving each girl a point card; 2) making each girl aware of the reinforcement contingencies; and 3) making each girl aware of the punishment contingencies.

Having accepted the community standard, the selection of behaviors for change was a manageable problem. If a girl exhibited behaviors which would be detrimental to community adjustment, these behaviors would be eliminated or reduced to a low rate. If a girl lacked or exhibited a low frequency of behaviors required for community adjustment, those behaviors would be developed or increased in frequency.

Prior to the initiation of a reinforcement system and training projects on Mimosa "C", the project director, with the assistance of the program supervisor, outlined a list of behavioral categories important for community acceptance. Two research assistants, who had been previously trained as observers, began taking timed-sample observations. The technique used was to observe one girl at a time during a specified time interval. The three-term contingency method of observation was followed, i.e., the stimulus, the response, and the consequences of the behaviors emitted by the girls were recorded. This information was then defined for purposes of obtaining the full-scale observation. This procedure resulted in a 44-item check list containing items in the following seven categories of personal and social skills:

a. Use and care of clothing

b. Cleanliness

c. Grooming

d. Posture while walking

e. Posture while sitting

f. Verbal behavior

g. Social behavior

The specific items of the seven categories are shown in Exhibit 7.

The categories of the check list served as a rough guide for developing training projects related to personal and social skills, and as a procedure for evaluating some of the effects of the overall program. Other, more specific, evaluation techniques had to be developed for projects related to sewing, cooking, ironing, and movement within the community.

Collection of Baseline Data: Immediately preceding the initiation of training on Mimosa "C", the check list described above was used to evaluate the behaviors of the girls on the cottage. The procedure followed was to have the two observers simultaneously record all behaviors on the list for the same set of girls. For all behaviors, whether they could be observed once or several times in the 3-hour observation period, the observers were given instructions to record it only once. During this period they also kept notes on those behavioral definitions which made observer agreement difficult and those which were too difficult to observe for any other reason.

From these observations and notes the categories to be observed were revised. It was decided at this time to change definitions from the positive, such as "hair combed," to the negative "hair not combed." This was done because it was determined that for most of the categories of behavior, the girls, as a group, were more on the positive side of the scale than on the negative. Therefore, forming the categories into negative definitions considerably decreased the number of behaviors to be observed and recorded.

Exhibit 7

Categories of Behavior Check List
(Mimosa "C")

Clothing

1. Dress appropriate to occasion
   - a. On the cottage - appropriate to receiving visitors; no state of undress accepted except in bathroom; casual clothing acceptable.
   - b. Evening canteen - slacks, jeans or bermuda shorts are not allowed during evening canteen hours.
   - c. Church - anything other than one's best daytime clothes should not be worn.
   - d. Movies - the same criteria as evening canteen attendance.
   - e. Hospital dances - use same criteria as evening canteen attendance.
   - f. Downtown - Use same criteria as evening canteen attendance.

2. Clothes dirty
   Observable spots or stains - perspiration marks under arms.

3. Clothes unpressed
   - a. Wrinkles resulting from poor ironing or no ironing.
   - b. Wrinkles resulting from overwear.

4. Clothes do not fit properly
   - a. Hemline no more than two inches above bend of knee and no more than one inch below.
   - b. Shoulders too tight or too large.
   - c. Sleeves too long or short if wearing long-sleeved blouse.
   - d. Too short-waisted or too long-waisted.
   - e. Not wearing belt if needed.

5. Colors not matched
   Colors and patterns not compatible by contemporary standards.

6. Socks dirty
   Socks dingy or soiled.

7. Shoes dirty

8. Clothes not hung properly
   - a. Placed on clothes hanger in such a manner as to produce wrinkles.
   - b. Not hung in proper place on clothes rack.

Exhibit 7 (cont.)

Physical Cleanliness
1. Hair dirty
    a. Hair appears dirty or oily
    b. Scalp appears dirty or has dandruff.

2. Face dirty - is obviously oily or smudgy.

3. Hands dirty

4. Elbows dirty
    Elbows appear darker than surrounding skin of arms.

Physical Grooming
1. Hair style
    Not appropriate to face contour, current fashions, or the occasion for which it has been styled.

2. Hair not parted
    a. Part is indistinct or has "dog legs."
    b. This category to be used only when part is appropriate to the hair style.

3. Hair not brushed or combed
    "Fly-away" hair or hair hanging in face.

4. Eyebrow pencil application
    a. Applied too heavily.
    b. Does not conform to natural eyebrow line.

5. Lipstick
    a. Does not conform to lip line.
    b. Applied too heavily.
    c. Color not appropriate to complexion and/or wardrobe.

6. Fingernails not trimmed neatly

7. Fingernails bitten or chewed

Walking
1. Head not up

2. Back not straight

3. Stomach not in

4. Toes not forward
    Walking with feet wide spread.

5. Shuffling
    Feet scraping or dragging and/or not lifted enough while walking.

Exhibit 7 (cont.)

6. Heavy walk
   Walk is bouncy or step is taken with more than necessary force.

Sitting
1. Legs not together
2. Back not straight
3. Sprawl

Verbal Behavior
1. Does not address adults with proper title
   Proper titles are Miss, Mrs., Mr., or Dr.
2. Uses swear words
3. Screams
4. Talks too loudly
5. Talks to self
6. Meaningless vocalizations
7. Rude

The same procedure of observing simultaneously and keeping notes was again followed. From this second set of observations and notes certain categories were removed from the list. "Legs not shaved," was one category which presented a problem. The only way to observe this category was to have the girls form a line and check their legs by looking and feeling. Another example of a category considered unobservable was "goes to bathroom before bedtime." This category was omitted because the observers were not available at the time the girls went to bed. The check list, as revised from these observations, was again tested by having the two observers observe all behavioral categories for the same girls. They then reported the list to be observable, but considered the process of observing even one-fourth of the girls (about seven) for all categories as unwieldy and decided to divide the behavioral categories in half. The procedure of observing one-fourth of the girls simultaneously, but for different behavioral categories, was then implemented and determined to work smoothly. Following this, the actual baseline observations were begun in October 1965. Half of the girls were observed for the first three weeks and the other half the second three weeks. During the first three-week period it was decided to completely remove the major category of "Bathroom Activities," because the girls took their shower at various times throughout the day and not necessarily during the three-hour observation period. No girl was observed fewer than 8 times and no more than 12 times.

A comparative check list observation was made about one year later, beginning in November 1966. Two different observers, employed only for this purpose, recorded the data. The procedures used for training these observers were the same as those used for the first observation period. As a test of the observation skills and the ability to establish reliability after training, both groups of observers were given a code, devised for training purposes, to be observed in 10-second coded intervals. The second two observers chose to observe one-fourth of the girls (about seven) each, for all categories. The instructions were the same, "If you see it once in the observation session, check it." After they had tested the code for several sessions, they began the second baseline observation. Ten observations were made on each of the girls.

Devising and Implementing a Reinforcement System: Once baseline data were collected, the first step in developing the cottage program involved the establishment of a reinforcement system. The reinforcement system established for "C" merits description since it deviated considerably from the reinforcement system initially used on "B" (see Footnote 1).

a. Activities with powerful community transition properties and money were used as back-up reinforcers (see Exhibit 8).

Exhibit 8

Privilege List (Mimosa "C") 1966

Categories	Number of Points Required
Scheduled Activities on Campus	
1. Movies	20
2. Canteen (45 min.)	10
3. Swimming	20
4. Programs	10
5. Record dance	20
6. Band dance	25
7. Sports activities	20
Cottage Activities	
1. Phone call to boyfriend	50
2. Phone call home	50
3. Picture of boyfriend	50
4. Picture to send home	50
5. Picture with boyfriend	50
6. Late t.v.	30
7. Parties	15
8. Date	15
Other Activities on Campus	
1. Walks	5
2. Parties on other cottages	10
3. Canteen (15 min.)	5
Off Campus Activities	
1. Downtown restaurant	100
2. Picnic	50
3. Dinner at bowling alley	100
4. Roller skating	75
5. Downtown swimming	100
6. Trip to another town	100
7. Shopping downtown	50
8. Church downtown	20
9. Walk downtown	20
10. Recreation downtown	20
11. Drive-in movie	100
12. Car ride for coke	50

Exhibit 8 (cont.)

13.	Dari-Queen	15
14.	Shopping L & N	15
15.	Movie downtown	120
Dates		
1.	Dinner on campus	25
2.	Church	10
3.	Movie	20
4.	Canteen	10
5.	Dance	20
6.	Swimming	20
7.	Drive-in movie	100
8.	Church	10
9.	Skating	100

b. The reinforcement and punishment contingencies, for the most part, were made explicit to the girls (see Exhibit 9 and 10).

c. Magic-marker checks on small, personalized, gridded cards were used as generalized reinforcers, rather than the British half-pennies used on "B" (see Exhibit 11).

The steps involved in the use of the point system of reinforcement were:

a. Each S was given four 3" x 5" oak tag cards joined by a staple. On each side of each card was printed a grid network of small squares (see Exhibit 11).

b. A given number of squares on each card was designated for each of the project areas, i.e., personal appearance, sewing, etc.

c. Aides and research assistants marked out a designated number of squares (1 square = 1 point) with a magic-marker when S completed the terminal response of a chain. For instance, when S received instruction in ironing, social reinforcement was given for increments of improvement, but marks were given only when the finished garment was presented for inspection. Criteria were established for judging the quality of response, but marks could be received for performances that did not reach criteria as long as some improvement over previous terminal performance was noted.

d. Behavioral categories were assigned to each of the four cards. Each separate card had its own categories duplicated on the reverse side of the card. On one side of the card the marks represented privilege points. The other side of each card represented money points (1 square = 1 cent). When the cards were presented to a staff person for marks, the S indicated whether she preferred to receive money or privilege points.

e. Each week the cards were collected from the Ss. The privilege and money points were entered in each girl's "bank book."

f. A list of available privileges was posted (see Exhibit 8) and the girls were familiarized with the activities. Many of the activities could be engaged in whenever the girl had the time, privilege points, and money. Other activities which required supervision had to be scheduled. Usually one major community activity was planned per week. To participate in this the girls had to sign-up at least one day in advance. The privileges were designed to provide experiences which are essential to success outside the institution.

g. Withdrawal of reinforcement was used to eliminate or to reduce the frequency of undesirable behaviors. A list of undesirable behaviors (see Exhibit 10) was posted and discussed with the Ss.

Exhibit 9

Ways to Earn Points
(Mimosa "C") 1966

Reinforcement Categories	Number of Points Received
Ironing	
1. Dress	8
2. Full skirt	7
3. Straight skirt	7
4. Blouse	6
Sewing	
1. Button	5
2. Hem of full skirt	7
3. Hem of straight skirt	8-10
4. Embroidering	6-8
5. Machine sewing	6-8
Hair Set	
1. Setting hair for resident on immediate floor	5
2. Setting hair for resident on lower floor	10
Hair Wash	3-5
Letter Writing	
1. Off campus: to friends and relatives	8
2. On campus: to residents on the lower floor or pen pals on male cottage	10
Errands	
For psychiatric aide or research assistant	6-10
Cottage	
Assigned work area	8-10
Social Activities	
Cooperative behavior in activities	8-10
Personal Effects	
1. Neat dressers	3-5
2. Clothing in bins and dresser drawers clean and neatly folded	3-5

Exhibit 9 (cont.)

Check Station Morning	
1. Beds	4
2. Dressers	4
3. Shoes	2
4. Socks	2
5. Bins	2
6. Teeth	4
7. Hair	4
Check Station Evening	
1. Legs shaved	3
2. Nails manicured	3
3. Hair well groomed	3
4. Dress appropriate	3
5. Shoes polished	3

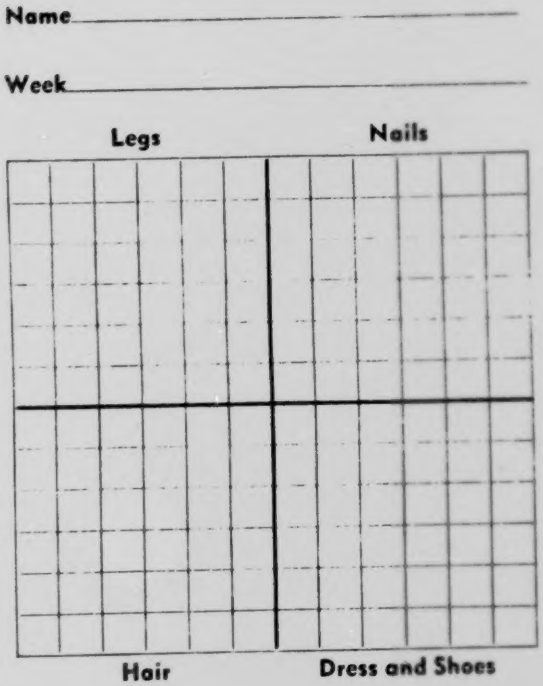
Exhibit 10

Costly Behavior (Mimosa "C") 1966

Categories	Number of Points
Disrespectful attitude toward adults	20
Disrespectful attitude toward peers	5
Inappropriate verbal behavior	5
Disobedient behavior	5
Neglect of cottage work assignment	10
Failure to complete cottage work assignment satisfactorily	20
Stealing	20
Lying	20
Tantrum behavior	10
Personal effects in disarray (bed drawer, bin, rack, etc.)	15
Wearing dirty clothes	5
Wearing other girls' clothing	10
Inappropriate night wear in day hall	5
Sitting on the front steps of the cottage	5
Turning television volume above the designated mark	10
Crossing line into aide area or kitchen area	5
Sitting in front of the television on the floor	5
Entering research assistants' office without knocking and asking to talk to person desired	10
Refusing to take medicine when aide calls	10
Not cleaning up game or sewing when finished	5

Exhibit 11

Sample Reinforcement Cards
(Mimosa "C")



Name

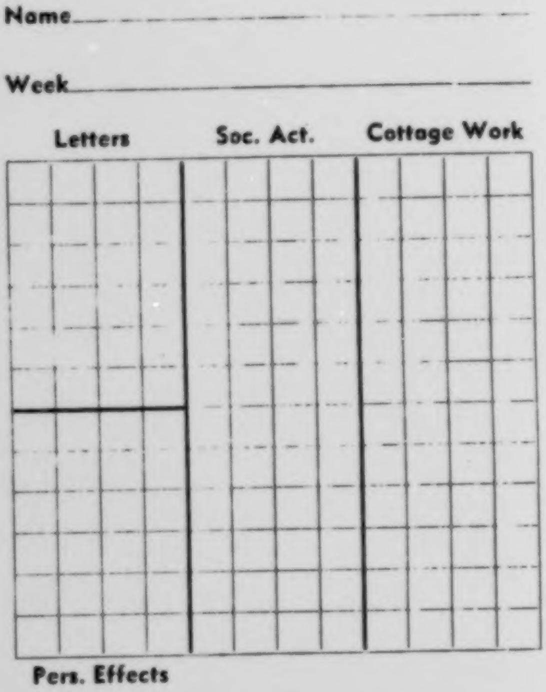
Week

Legs

Nails

Hair

Dress and Shoes



Name

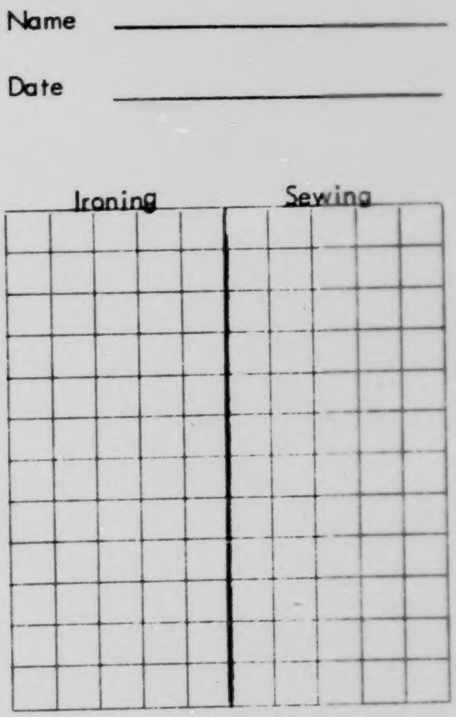
Week

Letters

Soc. Act.

Cottage Work

Pers. Effects

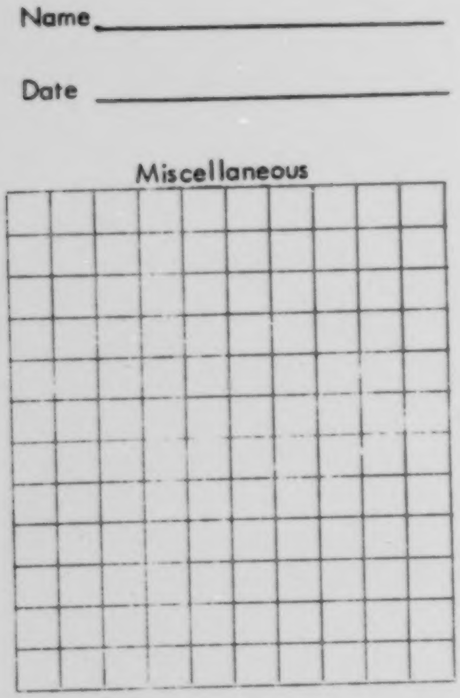


Name

Date

Ironing

Sewing



Name

Date

Miscellaneous

Individual problems arose which could not be handled by the general system. In such cases, individual treatment programs were carried out. However, the need for such individual programs was much reduced over the early Mimosa "B" program.

In addition to the consumables and Hospital activities initially used on "B" as reinforcers, money and downtown activities were added as reinforcers on "C". These downtown activities proved to be powerful reinforcers for the girls. However, these activities directly involved skills which were helpful in community adjustment, such as making purchases at the various stores, or attending church or a movie. Moreover, these activities aided in gradually shifting the control of the child's behavior from extrinsic reinforcers to the normal reinforcers found in the community.

Programing for Mimosa "B"

Abstract

Establishing the reinforcement system on Mimosa "B" consisted of introducing the girls to lists of "Ways to Earn Tokens," "Costly Behaviors," and "Privilege List." This system allowed for systematically applying rewards and contingencies. These procedures also decreased the large number of individualized modification procedures needed previously.

During the pilot project (see Footnote 1), tokens were used to reinforce behaviors of self-help, cooperation, appropriate social interaction, and constructive activity. In July 1965, with the aid of the present grant, the scope of the program was expanded. The goals were refined and modified to focus on the personal care, social, educational, and occupational skills required for community living. English half-pennies replaced unmarked planchets, since the half-pennies were smaller, could not be used in commerical vending machines, and were more like money found in the community. The items in the store remained the major source of back-up reinforcers for the tokens.

Modification of the Reinforcement System: In July 1966, the Mimosa "B" token reinforcement system was reorganized to be more consistent with the "C" procedures. This was done for purposes of systematizing the distribution and presentation of tokens and to expand the girls' purchasing power.

The procedures followed in the reorganization were similar to those establishing the Mimosa "C" system. Lists entitled "Ways to Earn Tokens," "Costly Behaviors," and "Privilege List" were posted and explained to the girls. These lists were similar to those used on "C", but modifications appropriate to the ongoing training projects of "B" were made (see Exhibit 12, 13, and 14).

Exhibit 12

Ways to Earn Tokens
(Mimosa "B") 1966

Categories	Number of Tokens Earned
Work	
1. Cottage work assignments	8-10
2. Clean bins and dresser drawers	10 each
3. Putting clean laundry away	10
Cooperative Behaviors	
1. Helping peers with appearance, dressing or constructive skills	5
2. Following directions willingly	5
3. Rendering services to others, i.e., washing and setting others' hair, writing letters, ironing, sewing for others, etc.	10
Volunteer	
1. Helping aides	5-10
2. Helping research assistants	5-10
3. Taking lower level residents to assignments	10
4. Running errands	5-10
5. Picking up trash on cottage and outside	5
6. Doing laundry	5-10
7. Putting away toys, games, sewing, etc. when finished with them	5
8. Cleaning extra bins	10
Polite Behavior and Manners	
1. Saying "Please " and "Thank You"	3-5
2. Speaking appropriately to adults and peers	3-5
3. Quiet behavior, i.e., playing record player or t.v. at low level	3-5
4. Changing clothes in bathroom	3-5
5. Wearing bathrobe	3-5
6. Successive approximations for better speech	3-5
7. Sitting properly	3-5
8. Eating properly	3-5
9. Proper use of napkin in dining room	2
10. Speaking properly on the telephone	3-5

Exhibit 12 (cont.)

Self Care and Grooming	
1. Brushing teeth	2
2. Shaving legs and underarms	5-10
3. Caring for nails	5-10
4. Washing and setting hair	5-10
5. Bathing activities and using deodorant	3-5
6. Polishing shoes	10
7. Taking care of clothes	10
8. Getting all of clothes out for the next day	5
9. Check station	20
a. Hair combed	
b. Belt with dress or blouse tucked in	
c. Clean hands, face and nails	
d. Clean clothes	
e. Polished, brushed or washed shoes	
(Note: These items are also reinforced at other times than check station)	3-5
Special Activities	
1. Playing games	5-10
2. Sewing	5-25
3. Ironing	15 per day's change
Other	
1. Specific research activities	Varies
2. Speech and music programs	Varies
3. Specified individual behaviors (Example: smiling for a usually unsmiling girl)	5-10

Exhibit 13

Costly Behaviors
(Mimosa "B") 1966

Categories	Number of Tokens Lost
Rowdy Activities	
1. Running on cottage	10
2. Throwing objects	10
3. Fighting and arguing	10
4. Teasing peers	10
5. Yelling and screaming	10
6. Tantrums	10
7. Unnecessary noise	10
Disrespectful Behavior	
1. Inappropriate address to adults	10
2. Disrespectful to adults or peers	10
3. Not minding aide or research assistant	10
4. Lying	10
5. Stealing	10 + amount stolen
6. Refusal to do cottage work	10 + payment
Unlady-like Behavior	
1. Sitting on floor with legs sprawled	10
2. Sitting on steps or sidewalk	10
3. Lying on furniture	10
4. Not wearing bathrobe	10
5. Hanging on, or following aide, research assistant, or visitors	10
6. Changing clothes other than in bathroom	10
Negligent Self Care	
1. Messy bins and dresser drawers	10 each
2. Wearing dirty or torn clothing	10
3. Unmade beds	10
4. In dayhall area without hair combed	5 and to dorm until hair is combed
5. Wearing other girls' clothes or extra clothes	10
Other	
1. Going inside red-lined areas	10
2. Any privilege without permission	2 X cost of privilege
3. Not putting toys, games, sewing, etc., away when finished with them	10

Exhibit 14

Privilege List
(Mimosa "B") 1966

Categories	Number of Tokens Required
Scheduled Activities on Campus	
1. Movies	20
2. Canteen	20
3. Swimming	10
4. Programs	20
5. Record dance	20
6. Band dance	100
7. Sports activities if not required	20
Cottage Activities	
1. Pictures (Polaroid black and white)	35
(Polaroid color)	50
(with frame)	+15
2. Phone calls (local)	20
(to parents in-state)	100
3. Special parties	300
4. Help in preparing for parties	20
5. Home movies	20
6. Watching T.V.	10/hr.
7. Private talks with adult	5/1 min. (5 min. limit)
8. Playing record player	10/hr.
9. Use of pencil, crayons or scissors	10
10. Riding bicycle	10/hr.
Other Campus Activities	
1. Helping or "working" on another cottage	20
2. Walks on campus	20
3. Classroom assistant	20
4. Meals unescorted for certain girls	20
5. Parties on another cottage	100
Off-Campus Activities	
1. Picnics	300
2. Roller skating	150
3. Shopping downtown	100
4. Walks off campus	50
5. Car ride for coke or ice cream	100
6. Field trip	100
7. Beauty shop	100

Exhibit 14 (cont.)

8. Special activities	
a. Rodeo	100
b. Circus	100
c. Carnival	100
d. Out with adult on staff	100
Any activity on or off campus with date	50 extra
Any activity on or off campus unescorted	50 extra

The last two items only applied to certain girls and was the decision of the aide and/or the research assistant, or both.

This reorganization of the reinforcement system provided the staff with consistent guidelines for behaviors to be reinforced and behaviors to result in loss of tokens. It also provided the Mimosa "B" girls with more systematic information concerning the consequences of their own behavior. Such procedures can be viewed as analogous to the playing of a game. The rules, contingencies, rewards, and penalties were explained to the girls and from that point on the "game" was in effect.

Another result of this systematic approach to the presentation and taking away of tokens was the opportunity for the staff to decrease the emotionality often involved with the presentation of punishment. The aides and research assistants who observed a girl emitting a "costly behavior" needed only to state, "You have broken the rules and that will cost you," or, "That's all right if you wish to behave that way, but it will cost you."

Although this systematization decreased the large number of individualized modification procedures necessary prior to its incorporation, it did not eliminate them altogether. The system was designed for the individual modification approach to be used whenever it was necessary for changing a deviant behavior peculiar to an individual resident.

The expansion of the purchasing power of the tokens also followed the guidelines established on Mimosa "C". Increasing the variety of reinforcers for which tokens could be redeemed also increased the opportunities for participation in certain activities designed to introduce the girls to the community. This provided more opportunities for training in social skills requisite to community functioning. The steps followed for expansion of purchasing power were: 1) the number of weekly store redemption sessions was reduced from five to two; 2) an increase in the number of rental items available on the cottage; 3) the number of on-cottage activities available for purchase was increased; and 4) the number of off-cottage activities and parties was increased (see Exhibit 14). The girls were encouraged to save, and on occasion were reinforced with tokens for saving in individual bank books. These savings enabled the girls to pay for large monthly activities, such as skating parties, downtown movies, etc., and to purchase large items in the store. Those girls who refused the opportunity to save were restricted from the large activities only if they did not have enough tokens. It was not long until most girls on the cottage participated in the savings program. The use of bank books for each of the girls was necessary because the girls' individual token banks, located on a wall of the cottage, held only 125 tokens, and some activities cost as much as 300. To increase interest in the large activities, Polaroid pictures were taken at each activity and displayed on the cottage. As soon as new pictures were displayed, the old ones were taken down and placed into an activity scrapbook.

A detailed description of some of the large activities is presented below:

1. Picnics--Activities included organized games, relay races, dodge ball, hikes, etc., all of which were geared toward increased social interaction with male peers.

2. Field trips--Trips included walks around the city studying nature; a trip to a farm, or a trip to a department or grocery store to learn what things could be purchased at certain stores.

3. Car rides--To get a coke or ice cream, and to teach the girls how to order, accept, and pay for desired items; all of which indirectly taught the value of money.

4. Trips downtown--To the movies or to shop, to learn where to buy various items, and how to purchase them.

5. Parties on the cottage and on other cottages--Activities included action games, dancing, music, and refreshments; all of which were geared toward social interaction with male peers and how to behave as a guest or a hostess. (Each girl had a turn at being hostess.) There was a variation once a month, when all activities were table games, i.e., color bingo, checkers, animal race, parcheesi, dominoes, cootie, etc. (For detailed game descriptions see the Social Skills section.)

The cottage activities were almost always available upon request if the girl had the required number of tokens to pay for them. Campus activities were scheduled and were only available at certain times of the day.

Programing for Mimosa "A"

Abstract

Target behaviors to be developed on Mimosa "A" were attention to task, an adult, or a peer in an activity. The generalized reinforcer was the Peabody token. Reinforcement was given for cottage work, personal appearance, following directives, and running errands. The back-up reinforcers were leisure time activities and the cottage store. Negative contingencies consisted of withdrawal of tokens, time-out room, or standing in the corner.

General behaviors to be developed through reinforcement included attention to task, an adult, or a peer. Specific behaviors were reinforced concurrently by positive and/or negative consequences. The Peabody token was used as a generalized reinforcer for positive behavior. A token bank was installed on one wall for storage of these tokens. Negative behavior resulted in the withdrawal of five tokens and removal of the *S* to a corner of the cottage interior. A second consequence of negative behavior was removal of the *S* to an isolated space called the time-out room (TOR). Both classes of withdrawal lasted for 15 minutes. The *S* subsequently was returned to the cottage area where she could again receive positive reinforcement. The corner area served as an avoidance of the TOR. If the child continued negative behavior in the corner, the TOR was used.

The verbal and physical reaction to adult directions, correction, and rules which impinged on ongoing behavior was the performance measure. Physical destruction of property, aggression toward others, and failure to react quickly (within three seconds) to adult directions were called inappropriate or negative behaviors. Appropriate or positive behaviors were obedience to directives, constructive activity alone, parallel play and/or cooperative play. Occurrence of these appropriate behaviors in any of the areas of the cottage resulted in a consequence of two or three Peabody tokens dispensed on a variable-interval schedule.

The daily cottage routine involved a 30-minute work period (washing windows, dusting, sweeping, etc.), free play and leisure time, rhythmics (twice a week), personal grooming, and a shower program.

Description of behavioral interaction within the framework of the designated environment was the primary problem. The areas of activity made it possible to describe the extent to which the various activities and materials served as back-up reinforcers for tokens and to describe the preference for any activity as compared to another. Token containers were placed in each area and admittance to the activity required a predetermined number of tokens.

The daily circulation of tokens presented a problem of depletion. At times, insufficient amounts of tokens made it impossible to reinforce positive behaviors. A token discrimination procedure was initiated in March 1968. A white token was designated as a purchasing token which could be received in exchange for 15 other colored tokens.

The cottage store was located adjacent to the cottage area. Regular store hours were set on Monday, Wednesday, and Friday subsequent to a token exchange period where colored tokens were exchanged for white tokens and spent in the cottage store for preferred consumable and nonconsumable items.

The "White Token Procedure" (WTP) provided conditions for training behavior appropriate in a store. Each *S* was trained to remain standing or seated quietly until it was her turn to make a purchase. In addition, counting and matching procedures were taught, e.g., *N* tokens purchased *N* amount of items.

PERSONAL SKILLS

Marked deviation in personal appearance and personal habits are a major block to community adjustment. Realizing this, the cottage staff has directed much effort toward developing and maintaining training programs designed to teach desired behaviors. When these new behaviors were established the extrinsic reinforcement controls were faded until the behaviors were maintained by natural events. The following programs exemplify these procedures.

Personal Appearance

Members of the project staff believe that it is easier to respond in a positive manner to a retarded child if the child's appearance is as pleasant as other children of the same age who live in the community. If a child looks retarded, adults may respond to him as though he is retarded. Observation of the residents of Mimosa Cottage revealed several deficiencies in personal appearance which indicate the presence of mental retardation. Many of the deviations in appearance were artifacts of the institutional environment and were correctable. Thus, the first step was to make the Research and Hospital personnel on the cottage sensitive to the identifiable behavioral deficiencies.

The staff began by observing normal children in the community. Data collected during these observations revealed that the girls on the cottage had not developed standards of their own, had not developed the ability to discriminate the demands of different social settings, and equally important, neither had the staff.

The cottage staff was then urged to give reinforcements to the girls for approximations of good personal appearance. Reinforcements were in the form of tokens and verbal praise. The verbal praise served to create an awareness in the girls of exactly what responses were being sought.

The next step was to develop a check list of good grooming to aid the staff and to create even more awareness of the standards of good personal appearance. A research assistant rated each child daily on progress in the various areas. The most improved child was rewarded by a trip to a beauty shop in the community. Although improvement was obvious in all girls, the increase was not great enough during this initial phase. Therefore, systematic programing was begun on each floor of the cottage.

Personal Grooming Mimosa "B" (Ages 12-16)

Abstract

The residents of Mimosa "B" were the first subjects to receive systematic training in maintaining personal grooming skills. The criteria for satisfactory appearance was standardized and

> consisted of six items: 1) combed hair; 2) wearing clean clothes; 3) clean hands, face, and nails; 4) wearing a belt on dress or blouse tucked in; 5) neatly polished, brushed, or washed shoes; and 6) socks pulled up and neatly fixed and shoes tied. An analysis revealed that the most effective technique for maintaining personal grooming was praise plus ten tokens if all criteria were met, or nothing if one or more items were missed. The next objective was to develop self-maintenance of these skills. This was accomplished by instituting check-station on a random time schedule. Having established a quality of personal grooming skills, the discrimination process was shifted from the research assistant to the girls themselves. This was accomplished by training the girls to make judgments about the various items on the check list.

The training done in the pilot phase created a marked improvement in all the girls; however, it was necessary to develop systematic procedures for maintaining the items emphasized on the personal grooming check list. The first step in establishing these procedures was an inspection twice a day. These sessions were divided into baseline observation and five phases. During the baseline condition neither social nor token reinforcement was delivered. During the first phase, one token was delivered for each correct item, and a bonus of five tokens was given if all five items were correct. During the second and fourth phase, 10 tokens plus praise were given if all items were adequate. Nothing was given if the child failed on any item. Praise alone was given for correct performance during the third and fifth phase.

The criteria for satisfactory appearance of the Ss was: 1) combed hair; 2) wearing clean clothes; 3) clean hands, face and nails; 4) wearing a belt on dress or blouse tucked in; and 5) neatly polished, brushed, or washed shoes.

Data collection consisted of a checkmark for each of the five items for each of the Ss. The percentage of Ss meeting criterion on each of these five items were calculated, and these figures were used in the data analysis. The analysis revealed that the most efficient techniques to maintain personal grooming were praise plus 10 tokens if all criteria were met, or nothing if one or more items were missed. One token per correct item with a bonus of five tokens if all were correct was the next most successful technique. When praise alone was used, there was a decrease in the percentage of Ss meeting criteria.

Table 1 contains the mean percentage of Ss meeting criteria on the five items of personal grooming during each phase.

Table 1

Mean Percentage of Subjects Meeting Criteria on Personal Grooming (Mimosa "B") 1967

	Baseline No reinforcement	Phase I 1 token/check, bonus of 5 if all correct	Phase II Praise + 10 tokens All correct or nothing	Phase III Praise alone	Phase IV Praise + 10 tokens for all correct	Phase V Praise alone
Combed Hair	59	83	96	76.5	89	79
Clean Clothes	60	77	90	80	86	79
Clean Hands, Face & Nails	82	89	93	81.5	84	79
Belt	61	77	89	85	92.5	88.5
Polished Shoes	42	52	85	70	83	64
	$\bar{X}=60.8$	$\bar{X}=75.6$	$\bar{X}=90.6$	$\bar{X}=78.7$	$\bar{X}=87.9$	$\bar{X}=77.3$

Having established the most effective technique for maintaining personal grooming, the next step was to incorporate this technique with a time schedule which would maximize the probability of the development of self-maintained personal grooming skills. The primary problem was to determine the effects of unannounced check-station sessions. The check list used was the same as used previously with the six items included (socks neatly arranged became the sixth item).

A summary of the six phases appears in Table 2. The total number of items correct for each S per session was divided by the total number of Ss available for each check-station, and a mean number of correct items per session for the group was computed.

Table 2

Personal Grooming Program (Mimosa "B") 1968

				Items correct per session			
				11:00 a.m.		4:00 p.m.	
Phase	Dates	Program	Condition	Sess. No.	Group Mean (mean/child/ session)	Sess. No.	Group/Mean (mean/child/ session
I	1/16-2/02	Baseline (no reinf)	Announ. No prep.	14	3.2	14	5.7
II	2/05-2/26	1 token for each correct item	Announ. 15 min. to prep.	34	5.0	34	5.0

Table 2 (cont.)

III	3/27-5/08	10 tokens if all correct, or nothing	Same	30	5.6	27	5.8
IV	5/20-10/22	All or nothing; random a.m. or p.m.	Same	51	5.5	45	5.8
V	10/23-11/11	All or nothing; random a.m. or p.m.	Not announ. No prep.	6	4.2	4	5.0
VI	11/12-12/12	One token correct item	Not announ. No prep.	8	5.1	6	5.2

The results of the program indicated that personal grooming was being maintained on a random time schedule (once daily). The check-station was unannounced and the group maintained the quality of their personal grooming at relatively the same level (5.1 items per session per child in Phase VI), as during the first announced check-station procedure (Phase II). This reinforcement consisted of one token per correct item.

Statistical analysis revealed a significant difference in the $\overline{X}$ percentage of correct responses within these treatment conditions ($P = < .01$). The conclusions were:

1. One token per correct response plus a five token bonus produced a significant increase in correct responses compared to baseline. ($\overline{X}$ Baseline = 60.8%) $P = .03$.

2. Ten tokens plus praise if all five items were correct, or nothing if any response was incorrect produced a significant increase over responses in baseline, Phase III, and praise alone. ($\overline{X}$ Phase II = 90.6%, $\overline{X}$ Phase III = 78.7%, $\overline{X}$ Phase IV = 87.9%, $\overline{X}$ Phase V = 77.3%) $P = .03$.

After establishing a quality of personal grooming skills, the next step was to shift the discrimination process from the research assistant to the girls themselves. This was accomplished in 1969 by training the girls to make judgments about the various items on the check list. Check-station is currently held before each meal. The group makes judgments about each girl's personal grooming. The reinforcement is five tokens and praise if all items are correct and nothing if one or more items are incorrect.

Data collection was simplified to a passed or failed mark. Tabulations are made only three times yearly, unless daily experience indicates that a problem exists. The month of May 1970 is a representative sample of the period between July 1, 1969, and June 30, 1970. The data shows mean percentage of subjects meeting total criteria on personal grooming (see Fig. 1).

Personal Grooming Mimosa "C" (Ages 16-21)

Abstract

Check-station was held before each meal. Girls who passed all items were rewarded and girls who missed one or more items were given an uninteresting tray for that meal. These procedures were effective; however, they were accomplished under very tight stimulus controls. To equip the girls with an internal control system, they were trained to remember each of the items of personal grooming and make judgments on their own appropriateness.

Prior to 1968, training in grooming procedures took place at check-station. Each girl was checked on each item of the check list. If she were deficient in one or more items she was encouraged to make the needed improvement. Reinforcement was in the form of points and praise for items passed.

The Mimosa "C" check-station procedures for 1968 consisted of having three announced check-stations per day, each held 15 minutes before the daily meals. Data on each girl's performance were collected daily at only one of the three check-stations in a predetermined random order. The standard check list had eight items of personal grooming (shaved legs and underarms was the eighth item) used to evaluate each girl. Girls who passed all eight items were rewarded with privilege points and praise. Any girl who was incorrect on one or more items was required to correct the deficiency and was given an uninteresting tray rather than the standard Hospital meal. During 10 weeks of operation, the procedure maintained at an average of 7.8 correct responses per girl (8.0 possible).

The above techniques established procedures to maintain personal grooming; however, these procedures were under tight stimulus control and when they were relaxed the behaviors deteriorated. Therefore, the next step of training consisted of building in an internal control system for each girl so the maintenance was not as dependent upon external stimuli.

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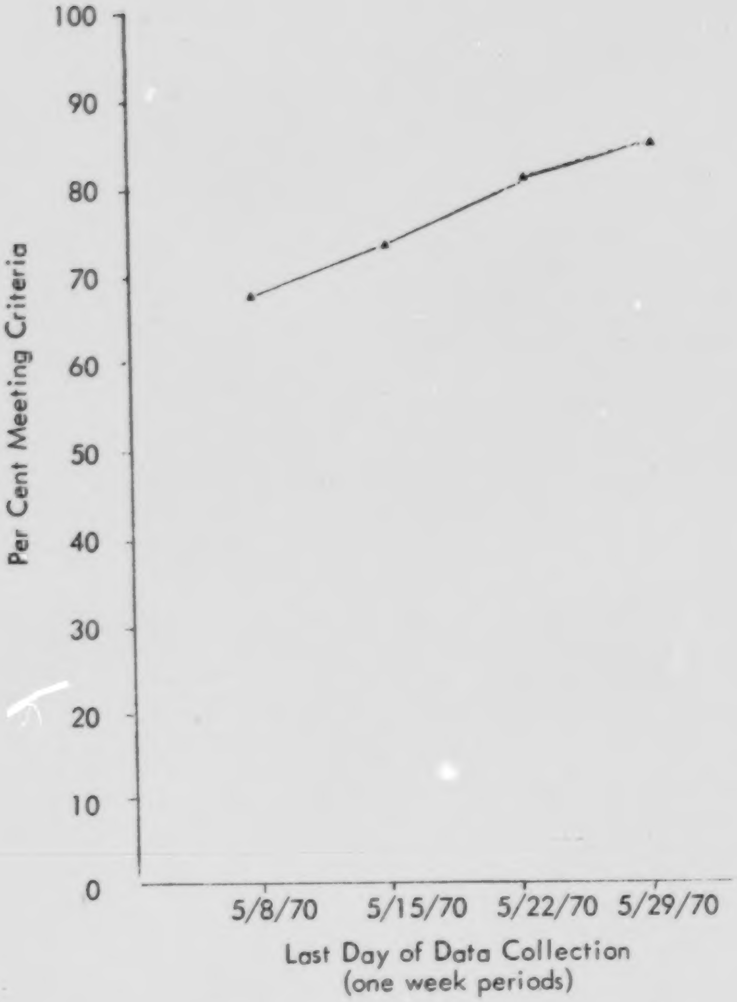
Figure 1

Mean Per Cent of Ss Passing
Criteria on the Personal Grooming Check List
(Mimosa "A") May 1970



To accomplish an internal control system, the Mimosa "C" girls were trained to remember each item of personal grooming and then to pass judgment on their own appropriateness. Before each meal the girls stood before a full-length mirror and verbally checked each item of their grooming. Reinforcement was delivered for each item remembered and for each correct judgment. If one or more items were incorrect or if the girl made an incorrect judgment, she was required to correct the item and was given an uninteresting tray for that meal.

Figure 2 contains the mean percentage of Ss meeting total criteria on personal grooming for the month of May 1970. Data from the check-station were tabulated only three times yearly, unless daily experience indicated that a problem existed. The month of May 1970 is a representative sample of the period between July 1, 1969, and June 30, 1970.

Personal Grooming Mimosa "A" (Ages 6-12)

Abstract

Using the standardized check list of personal grooming, the 16 residents of Mimosa "A" were evaluated regarding their appearance. Training procedures took place in the grooming area which was equipped with a full-length mirror, combs, brushes, and picture illustrating appropriateness for the six items of the check list. Initially, a specific time period was allotted for check-station. Girls passing all items received tokens and praise. Any girls failing to meet criteria on one or more items received no tokens and were given instructions regarding the needed correction. The final goal of the personal grooming program was to develop self-initiated and self-maintained skills. This was accomplished by following the above procedures except arranging the check-station time on a variable time schedule.

A check-station procedure was developed in 1967 to evaluate and improve the personal grooming and cleanliness of the Mimosa "A" girls, the first step in the procedure was the introduction of the check-station procedure to establish the baseline performances of the girls. Baseline performance was evaluated four times per week for four weeks. Then the reinforcement procedure was introduced. During the reinforcement period, the girls were given a token for each item of personal grooming that met criterion at the check-station. Personal grooming

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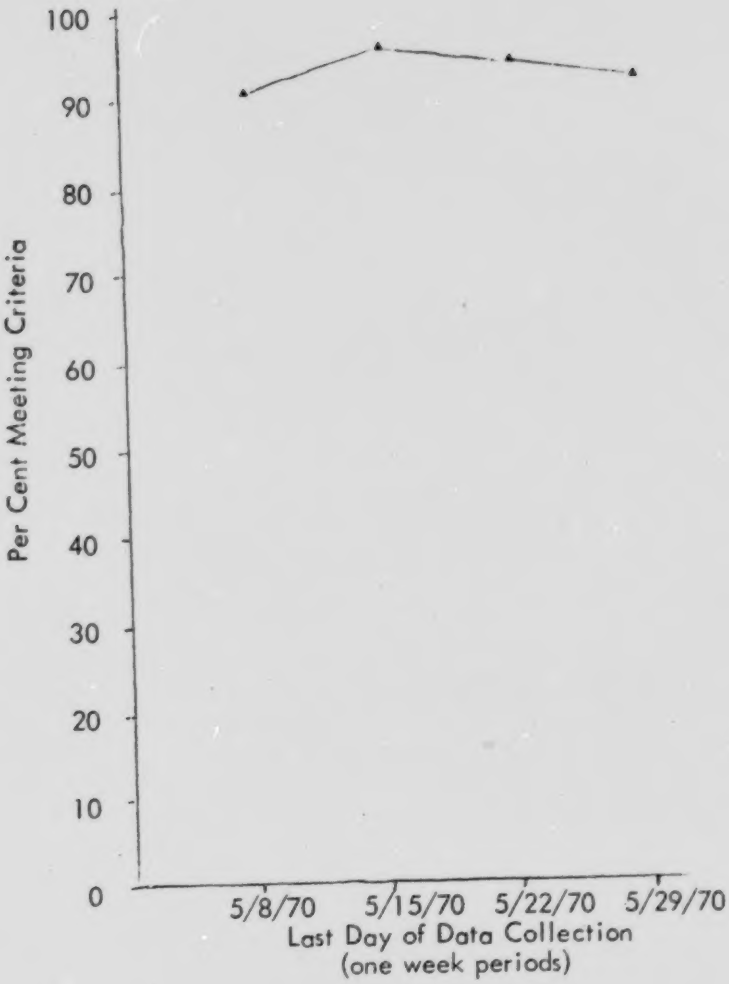
Figure 2

Mean Per Cent of Ss Passing
Criteria on the Personal Grooming Check List
(Mimosa "C") May 1970



improved markedly. After 16 weeks of reinforcement, the check-station and reinforcement procedures were both terminated for 19 weeks. Observations were then made at the check-station for one week. The children were checked but not reinforced. Personal grooming had deteriorated. After the one week of observation at the check-station, reinforcement was reinstated for one week. The girls showed improvement when they were again reinforced.

Table 3 shows that the total personal grooming improved under reinforcement conditions, but did not maintain during a period of no reinforcement.

Table 3

Mean Percentage of Subjects Meeting
Criteria on Personal Grooming
(Mimosa "A") 1967

	$\bar{X}$% of Subjects		$\bar{X}$% of Subjects	
	$\bar{X}$% of Ss in last 5 sessions		$\bar{X}$% of Ss in last 5 sessions	
	Baseline A	Treatment A	Baseline B	Treatment B
Clean Hair	90	99.8	79.7	70.6
Clean Face	57	83.6	67.5	73.0
Clean Hands	59	93.2	90.7	95.8
Clean Elbows	77.2	94.0	90.0	96.0
Combed Hair	47	80.6	34.2	69.2
Clean Fingernails	53.7	76.4	54.7	84.0
Absence of body odor	96	95.0	69.0	100.0
	$\bar{X}$ = 68	$\bar{X}$ = 89	$\bar{X}$ = 69	$\bar{X}$ = 87

The check list used to train and evaluate personal grooming was standardized for all three floors. It included the following items: 1) combed hair; 2) clean face; 3) clean hands; 4) clean elbows and knees; 5) clean dress, neatly buttoned or belted; and 6) socks pulled up and neatly fixed, and shoes tied.

Phase A consisted of baseline observation twice a day. The check-station was announced and the girls were checked according to the six items of personal grooming. No tokens were presented during this period. The mean number of correct items per session was 3.3 items per child, with a lowest mean score per session of 2.7 items to a highest score of 4.0. This was maintained for 26 check sessions. The mean score was about 50 per cent of the possible criteria.

Phase B consisted of 10 sessions to train Ss Ss to prepare for check-station. Check-station time was announced. Each S came to the grooming area of the cottage where there was a full-length mirror, combs, brushes, and pictures illustrating proper haircombing, face cleaning (emphasizing eyes, nose, and mouth), tied shoes, neatly fixed socks, and clean dresses. The Ss repeated verbally the necessary things to do and imitated the actions of the research assistant, i.e., "Hair must be combed, face must be clean, hands and fingernails must be clean," and so on. Subsequent to the imitation routine, the research assistant and each S looked into the mirror where successful or inadequate performance of any criterion item was shown, and her score was tabulated. A demonstration was given concerning the correction of any item. When all corrections were achieved the S was presented 15 colored tokens. This procedure resulted in an increase in correct items per session to a mean of 4.7; the range was from 3.9 to 5.2 and showed steady acceleration from the first session (3.9) to the last session (5.2). The mean of 4.7 represents 78 per cent of the possible number of items.

Phase C was comprised of 30 check-station sessions between the hours of 11:00 a.m. and 3:00 p.m. If all items were correct, the S received 15 colored tokens or one white token which was of equal exchange value. Ss failing to meet criteria on one or more items received no tokens and were told precisely which items had not passed. She was then instructed to make the necessary corrections. This procedure resulted in an increase to a mean of 5.5 items per session with a range of 4.3 to 5.9. The performance was maintained throughout the 30 sessions. In fact, the lowest session (4.3) was the only session below 5.0. The mean score 5.5 is 92 per cent of the possible items.

Phase D increased the number of check-station items to seven (shoes tied became the seventh item). During this phase the performance remained stable (mean 6.6; range 5.5 to 7.0) for 71 check-station sessions. The mean of 6.6 is 94 per cent of the possible items.

Table 4 contains dates, number of observations, conditions, and schedule of reinforcement during 1969. Performance measure was the number of personal grooming items each child had correct for each check-station observation. The total number of items correct for each S per session was divided by the total number of Ss available for each check-station, and a mean number of correct items per session for the group was computed. The group mean, and the lowest and highest session score appear in Table 4.

The goal of the personal appearance check-station was to develop self-initiated and self-maintained personal grooming skills. Since January 1969, check-station has been held once each day on a variable time schedule. The girls cannot predict when check-station will occur; therefore, they are not given time to prepare themselves. An aide on Mimosa "A" helps each child make discriminations concerning each of the seven items of the check list. If the girl passes all seven items she is reinforced with praise and 15 tokens. Should she miss one or more items, she is required to correct the item and return for a recheck. No tokens are given if a recheck is required.

Table 4

Personal Grooming
(Mimosa "A") 1969

Phase	Date	Check Station Obs.	Check Station Condition	Perform. Criteria	Sched. of Reinfor.	Items correct/ Session		
						Group Mean	Range	
							L	H
A	3/25- 4/15	26 11:30 am 1:00 pm	Announced; personal appearance checked	6 items	No tokens	3.3	2.7	4.0
B	4/16- 4/26	10 11:30 am 1:00 pm	Announced; checked, training	6 items any No. of trials	15 colored tokens if all correct	4.7	3.9	5.2
C	5/06- 6/24	30 Between 11:00 am 3:00 pm	Announced; time to prepare	6 items	15 tokens exchanged for one white token None if 1 missed	5.5	4.3	5.9
D	6/25- 10/20	71 (Same)	Announced; time to prepare	7 items** correct	1 white token; none if 1 missed	6.6	5.5	7.0

**Criteria same except shoes tied or buckled became a seventh item

Figure 3 contains the mean percentage of Ss meeting total criteria on personal grooming for the month of May 1970. Data from check-station were tabulated only three times yearly unless daily experience indicated that a problem existed. The month of May 1970 is a representative sample of the period between July 1, 1969, and June 30, 1970.

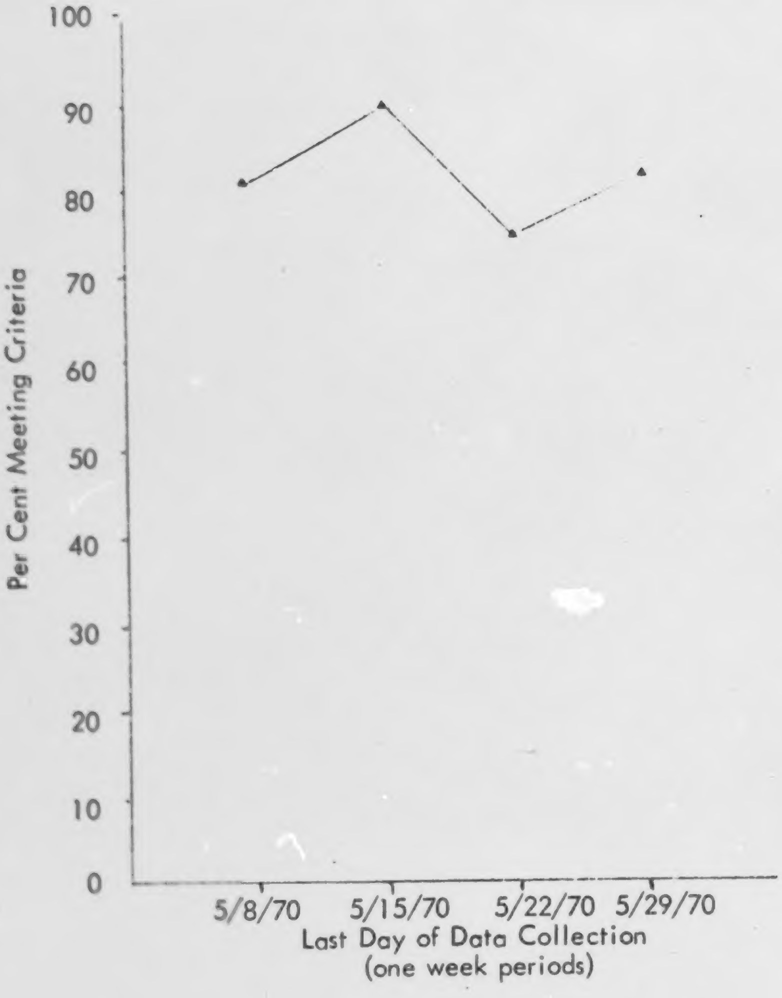
Appropriate Dress Mimosa "C" (Ages 16-21)

Abstract

Task analysis determined the components for proper dress. These components were: 1) color matching; 2) figure matching; 3) proper fit discrimination; 4) type matching; and 5) appropriate to occasion. A film containing various scenes of women dressed in various ensembles served as the pretest and posttest. Training

Figure 3

Mean Per Cent of Ss Passing
Criteria on the Personal Grooming Check List
(Mimosa "A") May 1970



> techniques consisted of films, group discussions, role playing, and Polaroid pictures. After six months of training, an analysis of the pre-/posttest data indicated significant gains in the areas of color matching, type matching, and appropriate to the occasion. However, there was no significant change in the categories figure matching or proper fit.

Retarded children, especially those who live in institutions, often dress in inappropriate, even bizarre, fashions. To find even initial acceptance in a community environment they need to be taught to dress in a manner which does not distinguish them from children of the same age who live in the community.

Before training could begin, a task analysis to reveal the essential components of this complex behavior was necessary. Subsequently, the components were sequenced into a training program which has been largely successful with the Mimosa "C" girls. Criteria for proper dress were established for five specific components. These were: 1) Color Matching--correct matching of colored skirts and blouses; 2) Figure Matching--correct matching of skirts and blouses according to geometric designs, i.e., various arrangement and sizes of squares, lines, circles, etc.; 3) Proper Fit Discrimination--correct selection of length and size of apparel; 4) Type Matching--correct matching of classes of apparel, e.g., footwear, such as dress shoes, shoes worn with a dress and not with shorts. In addition, correct selection of clothing for season was included in this category, e.g., a wool skirt and sweater should be worn during cold weather; and 5) Appropriate to Occation--correct matching of clothing ensemble for social events, e.g., slacks or shorts are usually inappropriate for church. For a complete description of this program see Appendix A.

Twenty-seven Ss were pretested, but due to transfers from the cottage, only 18 Ss completed the program and the posttest. The test administered before initiation of the training program (pretest) was identical to that administered after completion of the program (posttest). Each S was tested individually. A film was produced containing 57 scenes of a young woman dressed in a variety of clothing ensembles all of which related to the five discrimination categories. Each S was asked to provide a "yes" or "no" answer to a question concerning the appropriateness of the ensemble. The answers were recorded and became the pretest and posttest data. Exhibit 15 is the pretest and posttest question and answer form. Exhibit 16 is the pretest and posttest for the subjects.

Both individual and group techniques were used for the training sequence. Each S completed two programs designated to teach correct matching of colors and figures.

The categories concerning proper fit, appropriate to occasion, and type of wearing apparel, were taught by a group method. Three classes with six to nine girls in each class viewed pictures and films. Group

Exhibit 15

Appropriate Dress Program
Pretest and Posttest Question and Answer Form
(Mimosa "C")

I. Color matching--"Does this match?"

	SKIRT	BLOUSE
A.	Red	Purple
		Orange
		White
		Green
B.	Navy	Orange
		Purple
		Light blue
		Black
C.	Green	Pale yellow
		Purple
		Orange
		Pink
D.	Orange	Red
		Purple
		Navy
		Beige
E.	Yellow	Purple
		Red
		White
		Orange

II. Figure matching--"Does this match?"

	SKIRT	BLOUSE
A.	Plaid	Stripes
		Figures
		Solids
B.	Stripes	Solids
		Figures
		Different stripes
C.	Figures	Stripes
		Checked
		Solids

III. Type matching--"Does this match?"
A. Cotton plaid skirt--nylon blouse
B. Cut offs--nylon blouse
C. Cut offs--knit pullover
D. Gathered skirt--knit pullover
E. Gathered skirt--blouse (inside)
F. Party dress-oxfords
G. Party dress--go-go boots
H. Party dress--dress shoes
I. Shorts--dress shoes
J. Shorts--oxfords
K. Shorts--sweater
L. Shorts--nylon blouse
M. Wool plaid slacks--nylon blouse
N. Wool plaid slacks--sleeveless blouse
O. Wool skirt--sleeveless blouse
P. Wool skirt--sweater
Q. Party skirt--sweater

IV. Proper fit--"Does this fit?"
A. Dress (without belt)
B. Dress (too large)
C. Dress (too long)
D. Skirt (too short)
E. Slacks (too short)

V. Appropriate to occasion--"Would you wear this to____?"
A. Party dress--ball game
B. Party dress--town
C. Party dress--dance
D. Shorts--record dance
E. Shorts--town
F. Shorts--ball game
G. Jeans--town
H. Jeans--dance
I. Jeans--on cottage

Exhibit 16

Appropriate Dress Program
Pretest and Posttest for Subjects
(Mimosa "C")

I. Color matching
A. Yes____ No____
Yes____ No____
Yes____ No____
Yes____ No____
B. Yes____ No____
Yes____ No____
Yes____ No____
Yes____ No____
C. Yes____ No____
Yes____ No____
Yes____ No____
Yes____ No____
D. Yes____ No____
Yes____ No____
Yes____ No____
Yes____ No____
E. Yes____ No____
Yes____ No____
Yes____ No____
Yes____ No____

II. Figure matching
A. Yes____ No____
Yes____ No____
Yes____ No____
B. Yes____ No____
Yes____ No____
Yes____ No____
C. Yes____ No____
Yes____ No____
Yes____ No____

III. Type matching
A. Yes____ No____
B. Yes____ No____
C. Yes____ No____

III. (cont.)
D. Yes____ No____
E. Yes____ No____
F. Yes____ No____
G. Yes____ No____
H. Yes____ No____
I. Yes____ No____
J. Yes____ No____
K. Yes____ No____
L. Yes____ No____
M. Yes____ No____
N. Yes____ No____
O. Yes____ No____
P. Yes____ No____
Q. Yes____ No____

IV. Proper fit
A. Yes____ No____
B. Yes____ No____
C. Yes____ No____
D. Yes____ No____
E. Yes____ No____

V. Appropriate to occasion
A. Yes____ No____
B. Yes____ No____
C. Yes____ No____
D. Yes____ No____
E. Yes____ No____
F. Yes____ No____
G. Yes____ No____
H. Yes____ No____
I. Yes____ No____

discussion followed concerning the proper length and size of clothes, and whether the clothing ensembles were appropriate for given occasions. In addition, the E planned for each S to dress inappropriately or appropriately having the other members of the group discussing what was correct or incorrect about the ensemble.

Training also occurred outside of the class setting. Points were given for proper and frequent use of a full-length mirror on the cottage. Polaroid pictures provided immediate feedback to the S concerning proper attire. Points were given during check-station procedure for appropriate dress. Points were taken away for inappropriate dress. Each time points were given or taken away, the E pointed out the proper or incorrect parts of the S's clothing.

The posttest was administered after the training period (approximately six months after the pretest). Table 5 contains the group mean percentage error scores for pretests and posttests. In addition, it shows the number of Ss who improved, remained the same, or decreased in correct answers from pretest to posttest for the five categories.

Table 5

Results of the Pretests and Posttests for the Group Given Training in Making Appropriate Clothing Selections (1968)

	S	Improved in posttest	Same in posttest	Worse in posttest	Group $\overline{X}$% Error		
					Pre	Post	P
Color Matching	19	17	1	1	34	20	.005
Figure Matching	19	11	2	6	36	25	N.S.
Type Matching	18	12	4	2	45	28	.005
Proper Fit	18	6	6	6	37	35	N.S.
Approp.Occasion	18	14	2	2	38	20	.005

The results indicated that:

1. There were significantly fewer errors made by the group in the posttest than in the pretest for the categories of color matching, type matching, and appropriate to the occasion.

2. There was no significant change from pre- to posttest conditions in the categories of figure matching and proper fit.

Walking Training Mimosa "C" (Ages 16-21)

Abstract

In the early phases of the Cottage Demonstration Project, a walking program was designed and carried out with a group of 16 to 21-year-olds. Thirteen component responses were identified to correct inappropriate walking patterns. Teaching techniques included reinforcement, group and self evaluation, examples by instructor, physical manipulation by the instructor, rubber ball and music. Methods of teaching were designed for the 13 components. The procedures were successful in modifying the behavior during the training sessions; however, carry-over to other stimulus environments was minimal.

One of the most distinctive and handicapping features of the mental retardation syndrome is the "retarded walk." There are many ways to walk retarded, and they all draw attention to the retardation. Improvements can be made to make walking behavior less noticeable.

To improve the walking behavior of the girls on Mimosa "C", we carefully identified the component responses of walking to design a corrective program and to record progress. The components and the proposed sequence of development were:

1. Foot position when walking--toes forward.
2. Foot placement--one foot almost in front of the other in steps of appropriate size.
3. Lift feet off floor when walking--eliminate shuffling and dragging feet.
4. Use light steps as opposed to heavy steps when walking.
5. Head up.
6. Shoulders down and back straight.
7. Torso--develop position where stomach and pelvic position are in line with head and shoulders.
8. Coordination--previously developed skills by balancing objects on head. This provides the opportunity to observe and reestablish faulty performance in already developed areas, reverting to further instruction and practice in areas where needed.
9. Arms--show sustained movements leading to skill in maintaining good posture while concentrating in another area of movement and developing grace in arm and hand movement.
10. Total walking behavior with natural arm movement.
11. Walking with other coordinated movements such as tray carrying, full cup and saucer, etc.
12. Walking up and down stairs.
13. Social dancing.

Teaching techniques included reinforcement with tokens of successive approximations to criterion performance; group and self evaluation with the use of a large full-length mirror, examples by instructor, instructor's physical manipulation of girl's position where necessary, use of a 12-inch rubber ball carried at waist height with elbows against sides (in all areas preceding arm movement training, the ball was used to eliminate watching feet instead of the mirror, and to keep arms and hands occupied while attention is centered on other areas of development, and use of a specific musical selection for each area of training to provide a discriminative stimulus for attention to that particular area (see Appendix B for descriptions of five of the components).

The results were encouraging.

1. All girls were able to achieve near-perfect performance in walking without help on the foot patterns.
2. All but one girl were able to maintain correct foot position when walking between the two taped lines.
3. All but two girls were consistently able to maintain correct foot position for a distance of 20 feet when walking without help or visual stimulus of any kind.
4. All girls were able to maintain correct foot position and complete balance control (with support of fingertips against adjacent wall) while walking on balancing beam.

(Figures 4 - 11 contain the data for this program.)

While the results were encouraging, two major problems emerged.

1. Structural deviations severely limit the progress of some girls. To aid in the solution of this problem, a podiatrist was consulted.
2. There was very little generalization to other life settings. It will be necessary to design procedures which enhance generalization to other situations before the program can be regarded as successful.

Hair Care

Abstract

Realizing that hair care is a critical area of personal appearance, the staff has undertaken several procedures to increase the quality of grooming in this area. The first attempt was to have the cottage aide set and style the girls' hair. Next, older girls were trained to set hair for other residents. However, these nonprofessionals lacked specific training. A beautician was hired to train staff members as instructors and to give specific training to the residents. In an effort to make this behavior a functional life skill, a hair-setting program was written. Results were encouraging; however, revision is needed before this program can be useful to other trainers.

One of the more obvious personal appearance deficiencies of the residents of Mimosa was in hair care. Typically, the hair was poorly combed, inappropriately styled and often dirty. Faulty habits accounted

Figure 4

Group Mean Per Cent of Subjects Requiring Help on Foot Patterns

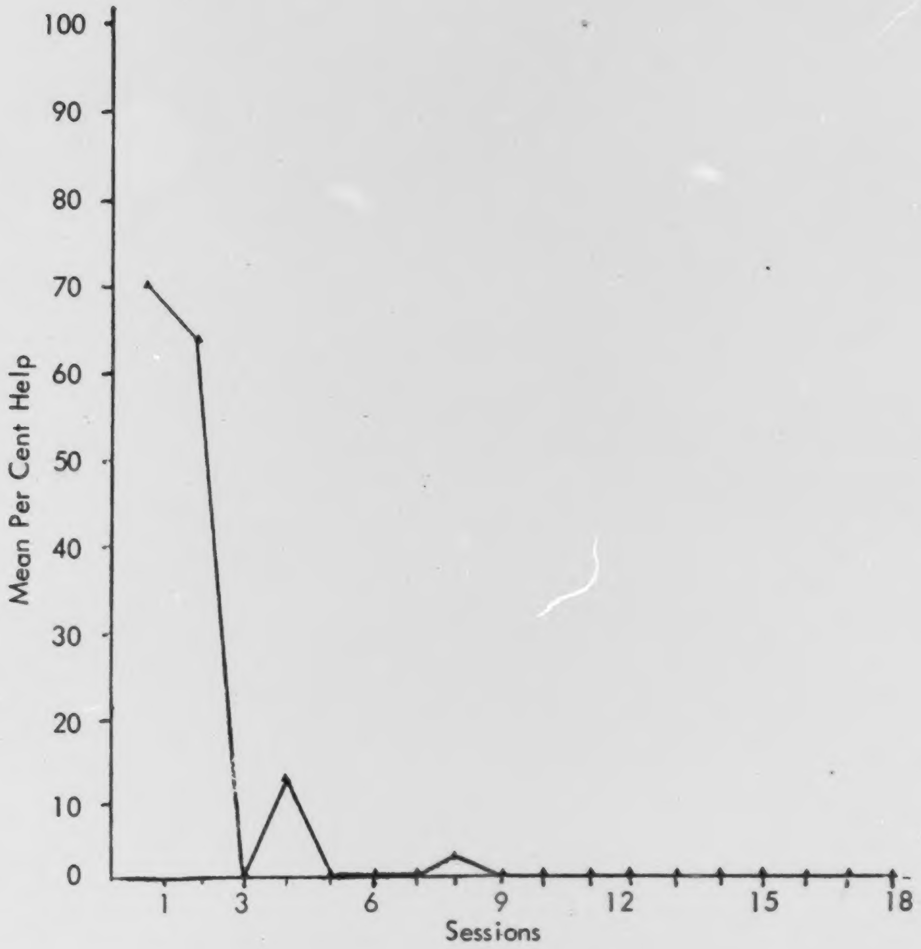


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Figure 5

Group Mean Per Cent of Subjects Making Inappropriate Response on the Foot Patterns

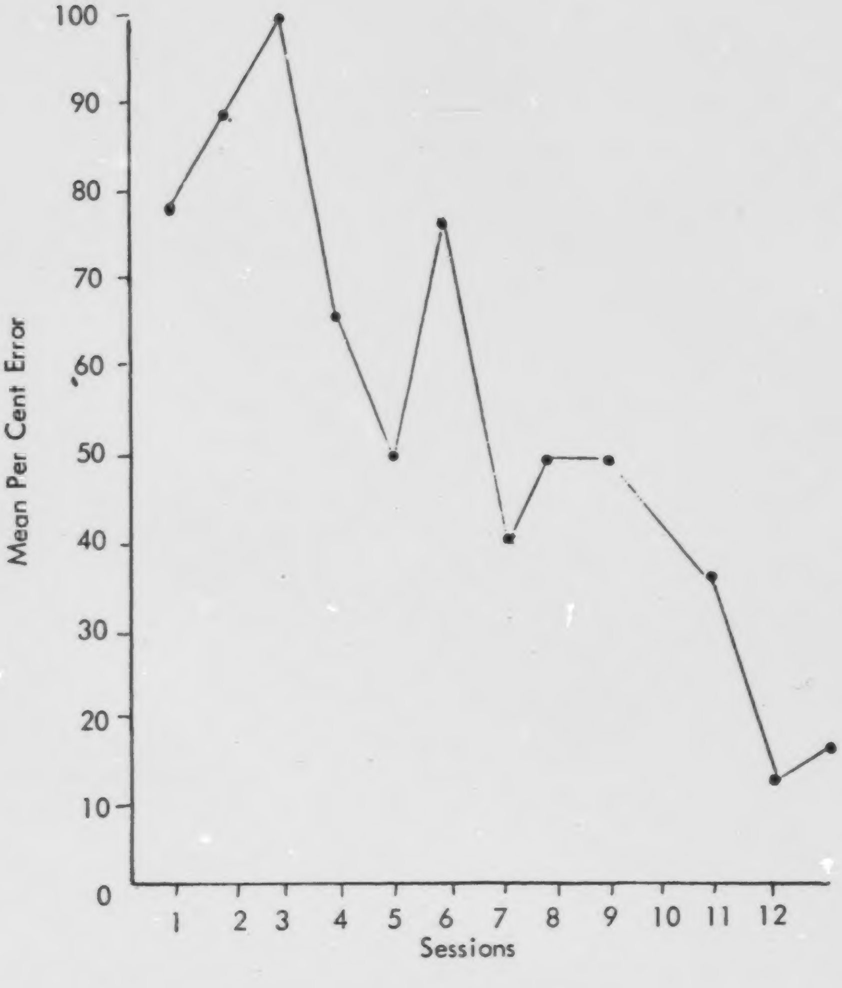

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Figure 6

Group Mean Per Cent of Subjects Requiring Help on Lines

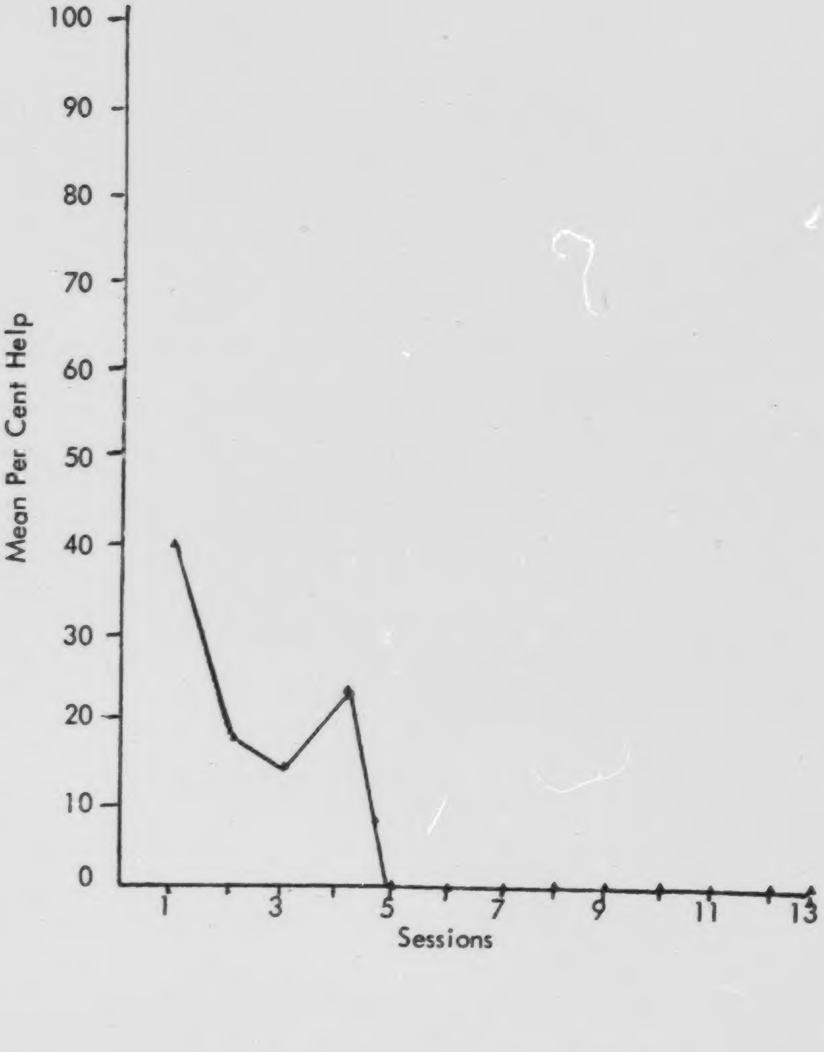

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Figure 7

Group Mean Per Cent of Subjects
Making Inappropriate Responses on Lines

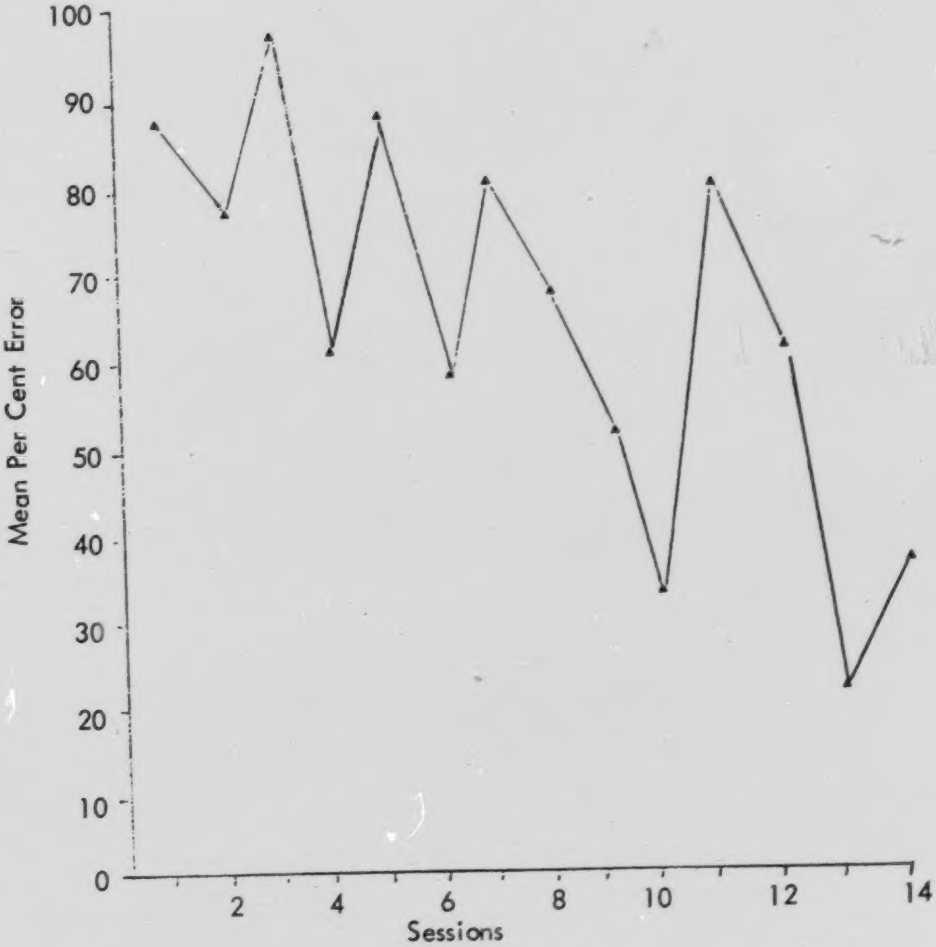

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Figure 8

Group Mean Per Cent of Subjects Requiring Help on Beam

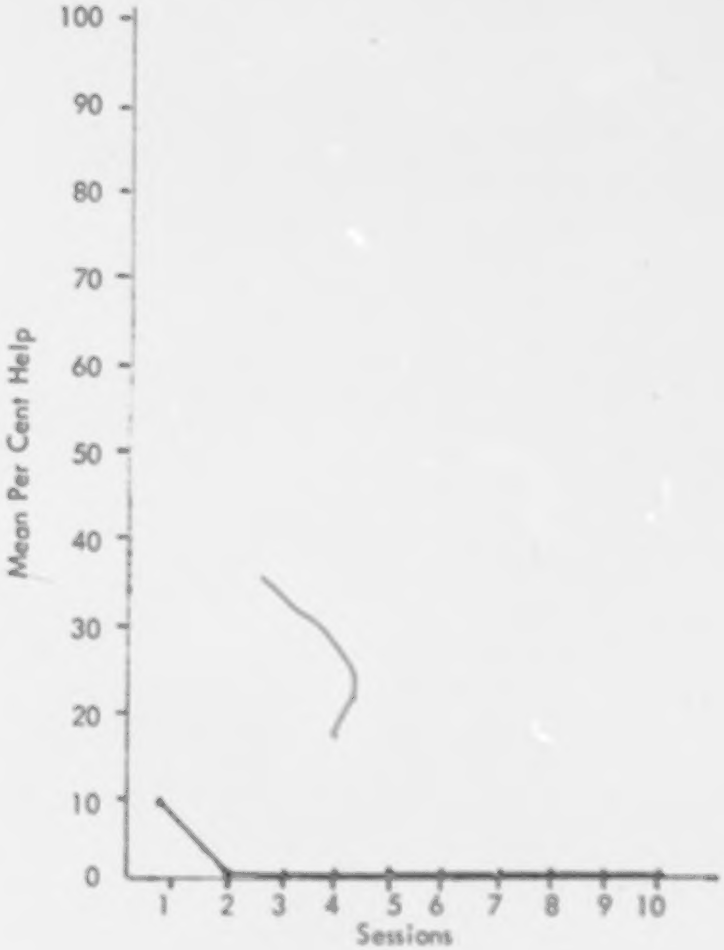

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Figure 9

Group Mean Per Cent of Subjects Making Inappropriate Responses on Beam

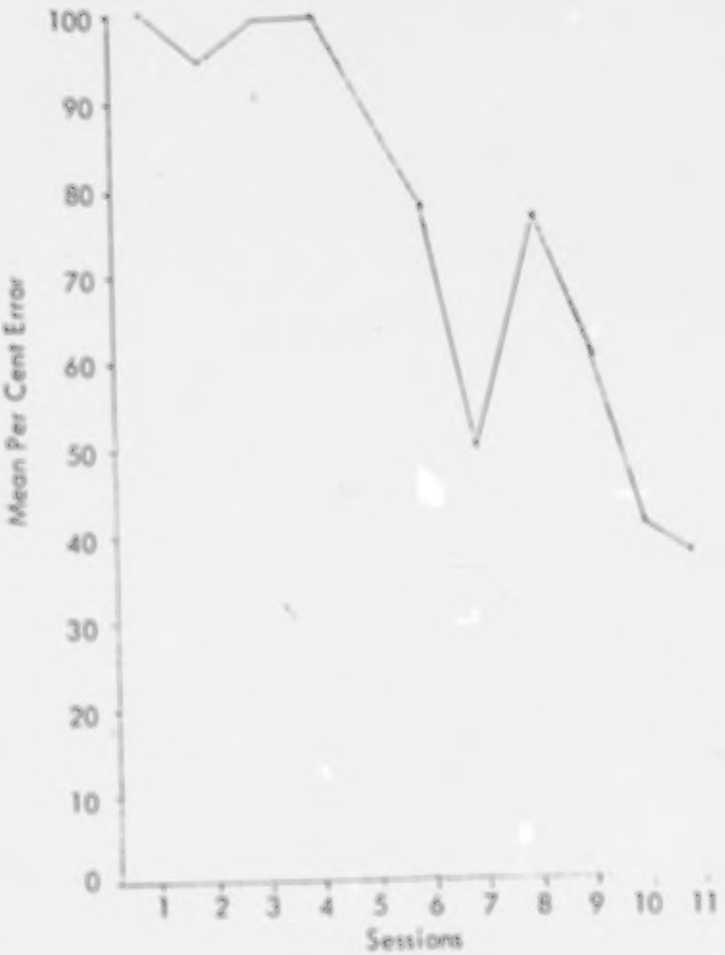

Figure 10

Within Session, Noncontrolled
Foot Placement
(Cumulative Records)

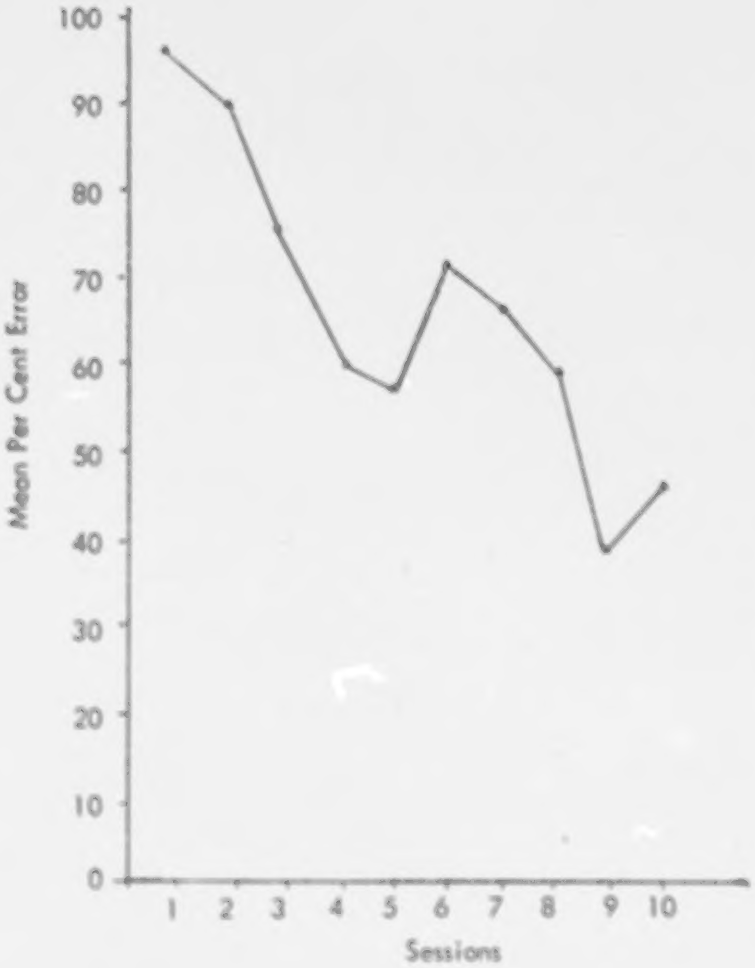

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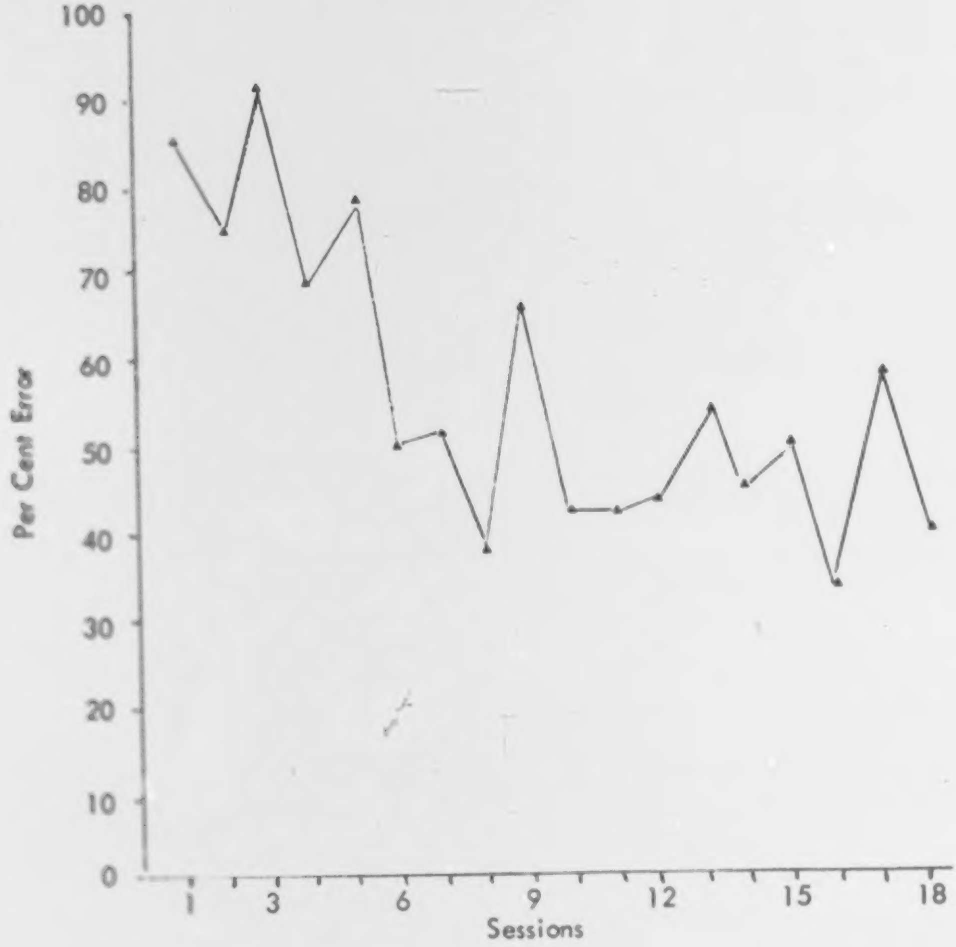
Figure 11

Within Session Controlled
Foot Placement
(Cumulative Records)



for much of the problem, but it was also apparent that nearly all the girls lacked specific skills in setting and combing and none of them were able to discriminate hair styles which were appropriate to themselves on different social occasions.

Observation during the first year of the project revealed that the typical institution haircut was too short to style or curl. Children were no longer sent to the institution beauty shop and gradually the hair grew to a manageable length. Aides and research assistants began to set hair and style it more appropriately, but it was quickly realized that there were too few staff members and too many girls. A partial solution to this problem was found by employing six older, higher level girls on Mimosa "B". These procedures, in conjunction with the weekly contest for personal appearance which paid off in a trip to a beauty shop in the community, created a noticeable improvement in hair care.

In the second year of the project a local beautician, who had some experience with retarded girls, was employed to give demonstrations and instructions one evening a week. Experience indicated that she could work with only two girls during the course of an evening. To extend her usefulness, she trained two research assistants to give instruction to small groups of girls while she worked intensively with her own two pupils.

To be a functional life skill, hair care must be accomplished by the girl herself rather than by a trained assistant. Also, from a financial point, it was impractical for the budget to maintain a professional beautician. Accordingly, a pilot test program was written in November 1969, to teach hair setting, a key feature of hair care.

The procedures represent a task analysis and backward chaining of the steps involved in hair setting. That is, hair-setting was broken down into components then arranged in a sequential order.

The instructor was presented with a manual of instructions (see Exhibit 17 for a sample of the program). This manual contained specific information about the materials to be used, procedures for teaching the objectives and evaluational criteria. Also included in each unit were drawings to aid the instructor and student in visually perceiving the task involved in each unit. The procedure section of each unit described the exact instructions the teacher was to provide as well as a description of the desired response for the student. Each unit was designed to teach only one component of the hair-setting chain, requiring the student to complete the step or steps learned in previous units.

An evaluation section was included at the end of each unit to assist the instructor in determining when the student was ready to move to the next unit. The objectives of each unit provide the basis for the pretest and posttest assessments.

The pilot program results have been encouraging; however, extensive revision is needed before this program can be functionally used by other trainers.

Exhibit 17

Sample of Hair-Rolling Program

Training Unit Objective Insert picks into rollers	Unit Number II B
Materials Used by Student Chair, Mirror, Picks	Materials Used by Teacher Comb, Setting gel, Rollers, Picks, Pictures No. 1 and 5

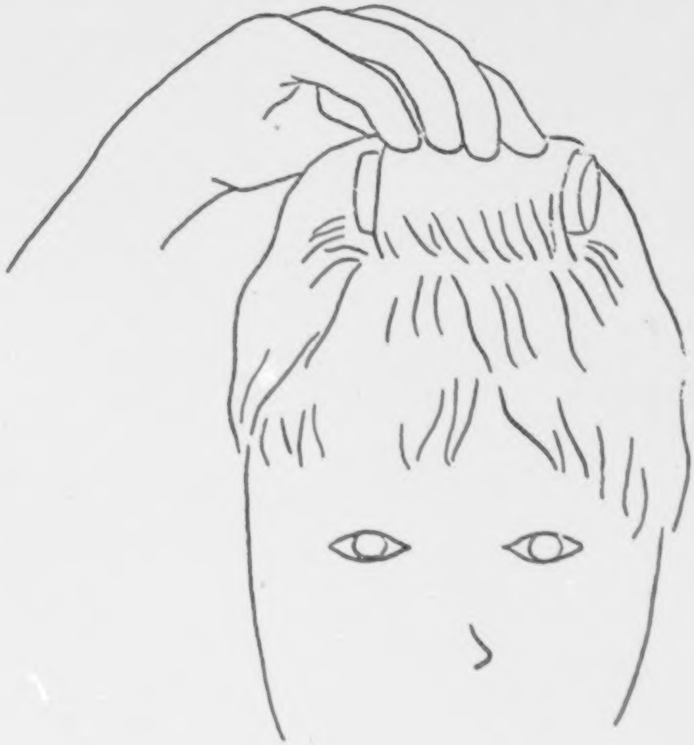
Procedures

Teacher's Instructions	Student's Responses
a) Prepare hair for rolling (comb, apply gel, part)	a) Observes
b) Roll hair around roller	b) Observes
c) Allow student to hold roller in rolled position (unit I)	c) Independently holds roller in rolled position with left hand (Unit I)
d) Demonstrate inserting a pick into the center of roller--using right hand	d) Independently holds roller in rolled position with left hand (Unit I) Inserts another pick into center of roller--uses right hand
e) Demonstrate inserting another pick into the center of same roller	e) Independently holds roller in rolled position with left hand (Unit I) Inserts another pick into center of roller--uses right hand
f) Repeat these procedures for each remaining roller.	f) Independently holds roller in rolled position with left hand (Unit I) Inserts a pick into center of roller using right hand; inserts another pick into same roller--Repeats (f) for each remaining roller

Evaluation

To hold rollers in rolled position with left hand. To insert two picks into center of each roller.

Exhibit 17 (cont.)



Picture 1

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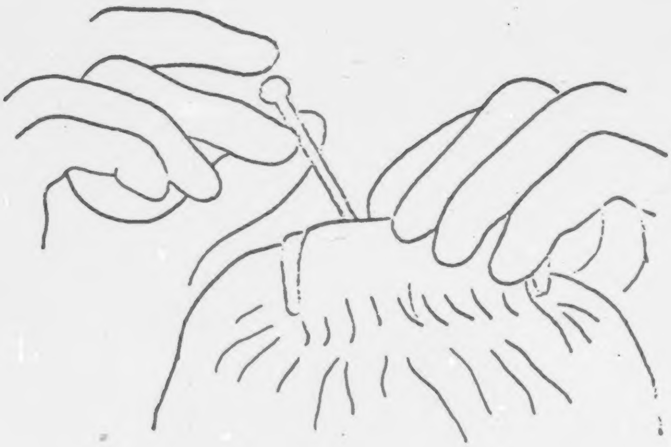
Exhibit 17 (cont.)



Picture 5

Sewing and Ironing

The sewing and ironing programs were originally developed because personal appearance cannot be adequately maintained unless the girls develop skills in these two areas. These programs also represent training for employment. A full description of the development and training is included in the Occupational Skills section of this report.

Personal Hygiene

Personal hygiene is the second critical area of emphasis in personal skills. The training programs undertaken to improve personal hygiene were oral hygiene, leg and underarm shaving, and showering.

Oral Hygiene

Poor oral hygiene results in tooth decay, unattractive mouth, and bad breath. Casual techniques were employed throughout the project to teach Mimosa residents proper care of their teeth. The casual teaching techniques consisted of individual instruction. Brushing teeth was included as a criteria for the shower routine (see Shower Routine Mimosa "B"). This technique insured that the girls brushed their teeth regularly.

Leg and Underarm Shaving

Critical to a girl's personal appearance and personal hygiene is shaving legs and underarms. Learning how to handle a safety razor is often a complicated process. Instructions were given to girls individually on how to perform this skill. Provisions were made in the check-station inspection for checks of these items (see Personal Grooming Mimosa "C").

Shower Bathing Mimosa "A" (Ages 6 - 12)

Abstract

The Mimosa "A" girls had poor bathing habits. This behavior was brought under verbal control by writing a shower song and training the girls to wash their body parts in response to the auditory stimuli. Training was done by reinforcing correct imitation and by role playing. These techniques resulted in a significant increase of body parts washed.

Prior to the initiation of a training program, few Mimosa cottage subjects had good bathing habits. None used soap and washcloths properly, and few washed all body parts. To bring this behavior under verbal control, a shower song was written in 1968. A phonograph recording was made with three female voices singing the lyrics while accompanied by a piano, bass viola, and handbells. The words of the song served as a discriminative stimuli for washing body parts and the music served to pace the washing responses (see Exhibit 18 for the words of the "Shower Song"). The training procedures used imitation and role playing.

Exhibit 18

Mimosa "A" Shower Song

Verse 1
We'll wash and scrub tonight, get clean and shining bright!
For that must be the way, for all good girls to stay!
So come along and see, how much fun it will be,
Together you can learn to bathe with me!

Chorus 1 (spoken)
Let's make sure to get plenty of soap on our washcloths.
Are you ready?

Verse 2
First we wash our face, all around our face!
Then we wash our ears, don't forget two ears!
Then we wash our neck, all around our neck,
And that's the way we start to bathe our bodies.

Chorus 2
Face! Ears! Neck! All around our
Face! Ears! Neck!

Verse 3
Now we wash our chest, all around our chest!
Then we wash our arms, up and down our arms.
Our arms we then will rise, wash up and down our sides!
Then we reach right through and backs we will wash too!

Chorus 3
Chest! Arms! Sides! Up and down our
Chest! Arms! Sides! Backs!

Verse 4
Now we wash our tummy, all the way down our tummy!
Then we do our hips, all around our hips.
Again we do our backs, all the way down our backs.
Our shower fun is over half way done!

Chorus 4
Tummy! Hips! Back! All the way down our
Tummy! Hips! Back!

Verse 5
It's time to wash our legs, up and down our legs.
Don't forget our knees; scrub, scrub, scrub, our knees.
We make our two heels neat, and then our toes and feet,
The bottom and the top, and then we stop!

Chorus 5
Legs! Knees! Heels! Toes and feet!
Legs! Knees! Heels! Toes and feet!
The bottom and the top, and then we stop.

The Mimosa "A" shower program consisted of three phases, the first two phases consisted of baseline and treatment.

Phase I: Baseline A (January - February 1968)--A check-sheet listing 35 body parts was used to count the number of body parts washed during the shower bath. Baseline data were collected for six sessions (see Exhibit 19 for a sample of the data sheet).

Treatment A--This treatment consisted of 21 sessions. For ease of training, the girls were divided into two groups according to high or low baseline scores. Tokens were presented during the group singing and action to the Ss who correctly imitated the E's actions. Finally, each S took turns playing the role of the leader. Each (dry) session was conducted between the hours of 1:00 and 5:00 p.m., and later (about 6:30 p.m.) the actual shower bath was taken. Data were collected on sessions number 10, 11, and 12.

Phase II: Baseline B (March 2 - May 17)--Because there was a period of no training it was necessary to collect another baseline. Baseline B continued for eight sessions.

Treatment B--There was reason to believe that performance of the "Shower Song" immediately before the actual shower bath would increase the number of body areas washed. Twenty-two training sessions were conducted four times weekly immediately prior to the shower bath. Data were collected each session.

The mean per cent and mean number of body areas washed per child during the baseline and treatment conditions were as follows:

	Mean Per Cent	Mean Number
Baseline A	19	6.8
Treatment A	27	9.5
Baseline B	25	8.7
Treatment B	50	17.6

A t test was conducted to determine if the differences were statistically significant. This test indicated a significant difference $P = < .05$ (see Table 6). The "Shower Song" program resulted in children washing more parts of their bodies. Treatment B was most effective, i.e., performing the song immediately prior to the shower-bath time produced the greatest increase in the number of body areas washed ($\overline{X} = 17.6$). Since this figure represented only about 50 per cent of the total criteria, another procedure was begun.

Phase III: The "Shower Song" was played in the shower area during the time the girls were engaging in the shower-bath routine. (Table 6 contains the results of each phase.)

Exhibit 19 Shower-Bathing Data Sheet

Shower Data

Date ______

Observer

	Face	
	Neck	
	Right Ear	
	Left Ear	
	Right Shoulder	
	Left Shoulder	
Right Arm	Upper	
	Lower	
	Elbow	
Left Arm	Upper	
	Lower	
	Elbow	
	Chest Area	
	Under right arm	
	Under left arm	
	Back	
	Abdomen	
	Genital Area	
	Rectal Area	
	Right Hip	
	Left Hip	
Right Leg	Upper	
	Knee	
	Lower	
Left Leg	Upper	
	Knee	
	Lower	
Right Foot	Heel	
	Top	
	Bottom	
	Toes	
Left Foot	Heel	
	Top	
	Bottom	
	Toes	

Table 6

Comparison of Mean Differences in the Shower Program (Mimosa "A") 1968-1970

Comparison	$\overline{X}$	Difference
Baseline A to Treatment A	6.3-- 9.5	3.2*
Baseline B to Treatment B	8.7--17.6	8.9*
Treatment A to Treatment B	9.5--17.6	8.1*
Baseline A to Baseline B	6.3-- 8.7	2.4
Treatment A to Baseline B	9.5-- 8.7	.8
Treatment C to Treatment A	32.7-- 9.5	23.7*
Treatment C to Treatment B	32.7--17.6	15.1*

*P = < .05

Shower Routine Mimosa "B" (Ages 12 - 16)

Abstract

The shower-bath routine was initially non-systematic. To develop a systematic program, the following specific behaviors were identified: 1) disrobing and placing dirty clothes in a laundry bag; 2) soaping, rinsing, and drying; 3) applying deodorant; 4) combing hair; and 5) checking out within 15 minutes after performing all tasks. Reinforcement was given to girls who completed all five steps. Instructions for correction were given to any girl who did not complete any item satisfactorily. The data showed gradual increase in Ss meeting criteria. However, several problems remained; intense supervision was required and depersonalization was caused by placing emphasis on speed and having the girls stand in lines. Standing in lines was eliminated by having the girls remain in the living room area until it was her turn to take a shower. The timer was eliminated. At this time, program supervision was shifted from research personnel to Hospital staff in keeping with the long-range goals of the project. These techniques produced a significant increase in correct responses.

Another shower problem was in the preparation for and completion of the shower process. Prior to the beginning of the project (1965), the shower-bath routine was nonsystematic. Intense supervision was required and procedures used were statements by the supervisor which often took the form of nagging and reminding the girls to take a shower. This technique was inefficient and time consuming.

During 1966 and 1967, a highly systematized program was developed for use on Mimosa "B". A procedure was devised which provided for the application of appropriate contingencies for correct performance of the behaviors to be modified. These behaviors were identified as: 1) disrobing and placing dirty clothes in a laundry bag; 2) soaping, rinsing, and drying; 3) applying deodorant; 4) combing hair; and 5) checking out within 15 minutes after performing all tasks.

Two pieces of M & M candy were presented for the successful completion of each task being measured. If all five tasks were performed satisfactorily, a bonus of four M & M's was presented. In the event a child did not perform a task, or performed it unsatisfactorily, she was not rewarded with candy and was directed to do the task again to the aide's satisfaction. No reinforcement was given following the completion of a task under the direction of an adult.

Procedurally, each S̲ was assigned to one of three groups (eight to nine in each group) according to age (eldest, middle, youngest). The shower routine occurred daily after the evening meal. The members of each group entered the shower area at an assigned time, and there was never more than one group in the area at any time. To gain entrance into the area, it was necessary for each member to have a container of deodorant and the appropriate clothing to be worn after showering. A mechanical timer was used to provide each group 15 minutes to complete the entire shower routine.

Data were collected by means of an appropriate check sheet (see Exhibit 20). The observer recorded a "yes" or "no" for each subject under each class of response. After all S̲s finished the shower routine, each S̲ received the correct amount of M & M's for each correct response.

Measurement consisted of the percentage of S̲s per session meeting each of the five behavioral criterion. These scores were averaged by deriving a mean percentage score and thus, an indication of the total performance in the shower program was obtained.

Figure 12 reveals these mean percentage scores in the baseline and treatment conditions. They have been arranged in 10 session blocks. It can be seen that the scores differ in that no overlapping occurs. A $\overline{X}$ of 54 per cent of the S̲s met criteria in the reinforcement condition. Under the treatment condition the mean quickly increased to 90 per cent and stabilized.

Exhibit 20

Shower Routine Check List

Subjects	Deodorant	Hair Combed	Clothes in Bag	Appropriate Clothing	√-O
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Date ____________________

Session ____________________

√ = Correct Response

– = Incorrect Response

Figure 12

Mean Percentage of Subjects Meeting Criteria in Shower Mimosa "B"

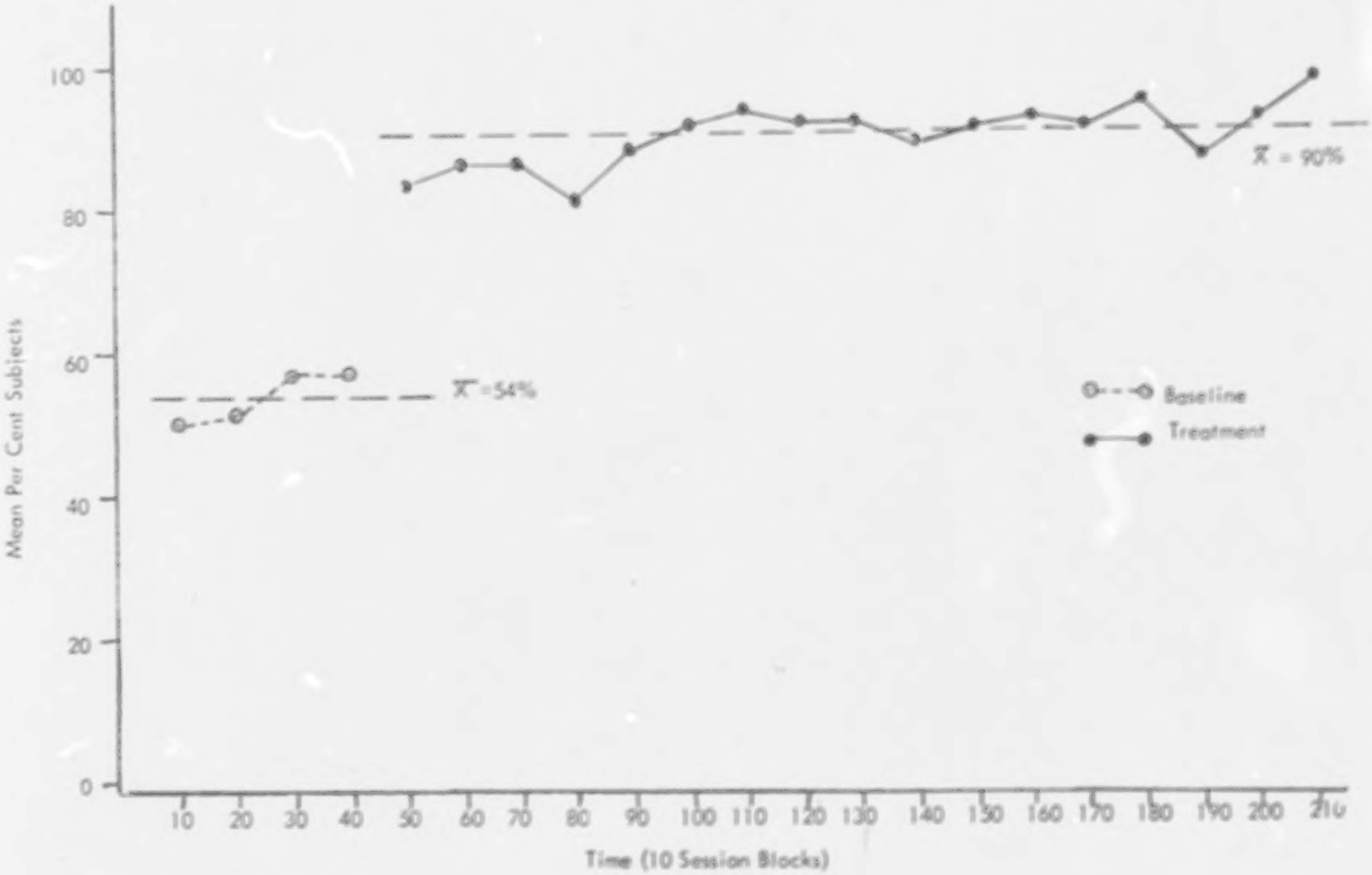


Figure 13 shows the mean percentage of Ss who met criteria during baseline and treatment in each of the five tasks in the shower program. There was improvement on all tasks during reinforcement and supervision as compared to baseline. The check-out category shows the greatest increase in Ss meeting criteria. The greatest increase from baseline to treatment was in the use of deodorant.

The mean per cent of Ss during baseline was 54 per cent for all five categories combined. The tasks which were being maintained at the lowest level were the use of deodorant, and combing of hair before leaving the shower room. Three other categories, i.e., check-out, wearing robe, and storing dirty clothes, indicated that 60 per cent to 80 per cent of the Ss were performing these tasks satisfactorily during baseline.

These procedures were based on positive reinforcement and a group approach. Data show that positive reinforcement consisting of tokens, candy, and praise for predetermined shower routine criteria increased efficiency and speed in the shower-bath area. Reminding was no longer necessary, but intense supervision was required daily. In addition, the formation of groups standing in line, and the emphasis placed on speed contributed to depersonalization.

On August 1, 1968, a new procedure was initiated. Five of the criterion items remained the same as in 1967. These were: 1) application of deodorant; 2) neatly arranged hair; 3) dirty clothes placed in the laundry bags; 4) appropriate dress (slippers or shoes, pajamas, and buttoned robe); and 5) check-out within 15 minutes (except when the Ss were to redress into street clothes or to wash their hair for which 20 minutes were allowed). One other item, shaving legs and underarms, was added for eight of the girls.

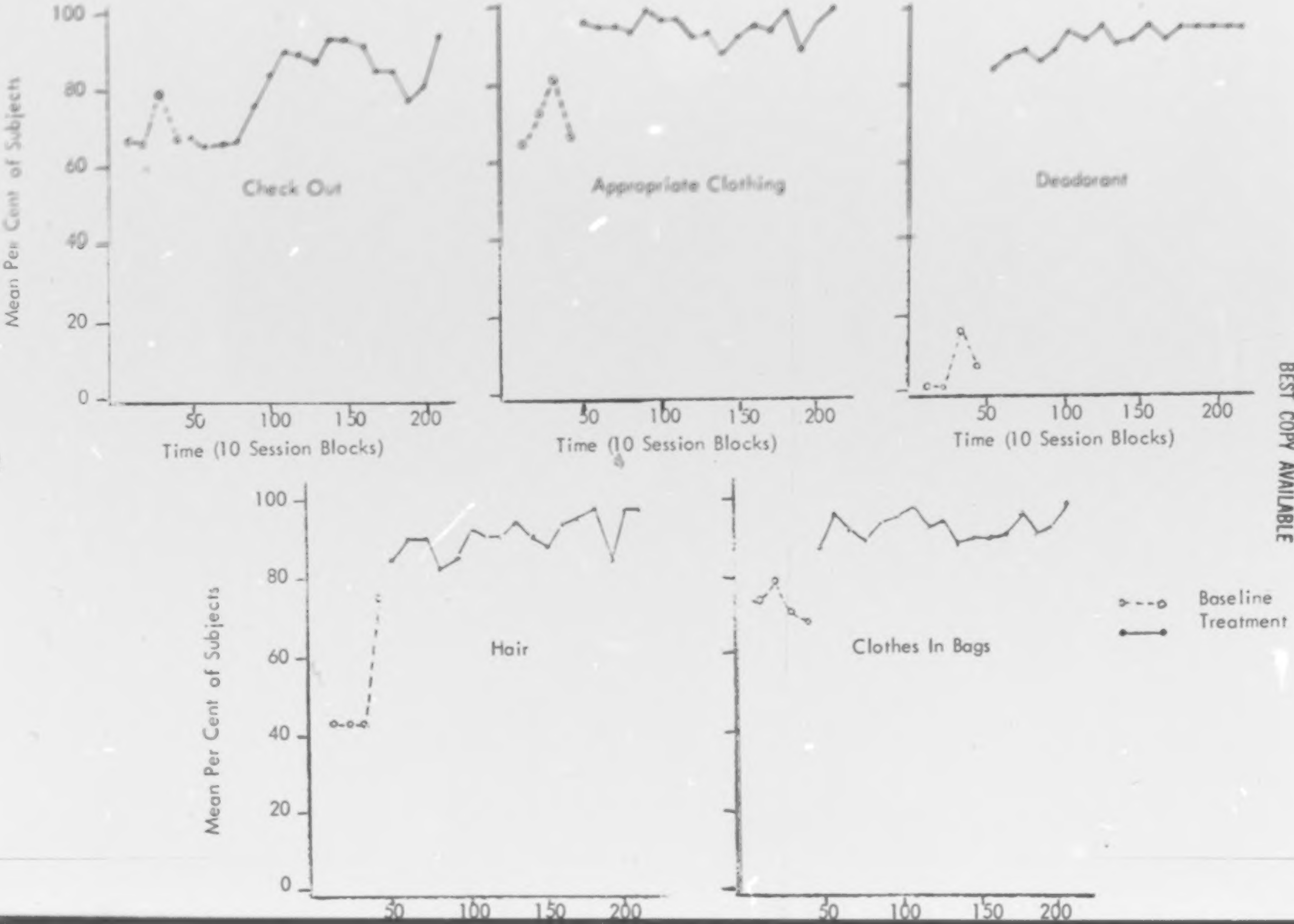
The new procedure eliminated the timer, the groups, and standing in lines. The Ss remained in the living area of the cottage until they were called into the shower area. Each girl who completed her shower-bath routine was sent into the living area to notify another girl that it was her turn.

Data from the preceding years indicated over 90 per cent of the Ss were maintaining consistent and efficient performance in the shower-bath routine. The results of the new procedure showed that the girls maintained this same high rate of performance. Check-out within 15 minutes was missed by an average of three Ss per session, and only one S failed to meet this criterion consistently.

Supervision was reduced by shifting the control to a cottage aide who was able to maintain the procedure with efficiency. In October 1968, data collection was faded. The schedule was to ignore the data collection for an average of two consecutive days and to collect data for two consecutive days.

Figure 13

Percentage of Subjects Meeting Criteria on Each Task in Shower Program



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Statistical analysis revealed a significant increase in the percentage of girls making correct responses during the treatment condition (Baseline $\bar{X}$ = 54%, Treatment $\bar{X}$ = 91%). Furthermore, this behavior has been maintained. The conclusions were:

1. One token per correct response plus a five-token bonus produced a significant increase in correct responses compared to baseline ($\bar{X}$ Phase I = 75.6%, ($\bar{X}$ Baseline = 60.8%) P = .03.

2. Ten tokens plus praise if all five items were correct or nothing if any response was incorrect produced a significant increase over responses in baseline. Phase I, and praise alone. ($\bar{X}$ Phase II = 90.6%, $\bar{X}$ Phase III = 78.7%, $\bar{X}$ Phase IV = 87.9%, $\bar{X}$ Phase V = 77.3%) P = .03.

Shower-Bathing Mimosa "B" (Ages 6 - 12)

Abstract

After establishing a systematic routine to be followed during the shower routine, another problem concerning showers was undertaken. The emphasis was now placed on proper shower-bathing. The first technique consisted of highly structured training sessions. The following steps decreased this structure to the point that the behavior was maintained by relatively casual techniques. The data indicated a large increase from baseline to first treatment phase and a steady increase during the phase-out step.

Although the girls were maintaining a systematic routine during the showers, it was discovered that there had been a deterioration in proper washing behaviors. The problems of bathing are somewhat different between the girls on Mimosa "A" and Mimosa "B". The older girls knew more of the body parts; therefore, were able to move at a faster rate. The Mimosa "A" shower program was instituted on Mimosa "B" in August 1969. One major modification was made in the procedures used on Mimosa "A". The "A" program allowed for a predetermined number of sessions during each phase before progressing to the next phase. With the Mimosa "B" program a predetermined percentage of body parts for a predetermined number of sessions was the criterion. This modification allowed each individual girl to progress at her own rate.

The following five phases describes the procedures used with the Mimosa "B" shower program.

Phase I--This phase consisted of baseline data to determine the washing procedures the girls were using.

a. A check list of body parts was used (see Exhibit 19).

b. Using this check list, a research assistant observed showers, checking body parts washed by each girl.

c. Duration--10 sessions.

d. No reinforcement.

Phase II--This phase introduced the "Shower Song."

a. The cottage was divided into two groups to be worked with separately.

b. Group I listened and acted out the "Shower Song" as a research assistant provided a model.

c. When group I completed the dry-run they prepared for the actual shower-time while group II had a dry-run session.

d. Each girl received tokens as they responded appropriately to washing body parts during dry-runs.

e. The "Shower Song" was also played during the actual shower time. A research assistant took data (as previously described) while the cottage aide provided the model.

f. This phase continued until each girl was washing 80 per cent of the parts for five consecutive sessions. (The girls moved to the next phase as they individually met criteria.)

g. Five tokens were given to the girls who had taken good showers.

Phase III--This phase eliminated the playing of the "Shower Song" during dry-runs preceding the actual shower time.

a. "Shower Song" was played only during shower time.

b. The cottage aide continued to provide a model every other night

c. Data were taken by the research assistant on alternate nights with the above schedule.

d. Five tokens were given nightly to each girl who had taken a good shower.

e. This phase continued until each girl was washing 85 per cent of her body parts for three consecutive data collecting sessions.

Phase IV--This phase reduced data taking and modeling.

a. The aide played the "Shower Song" during the actual shower time.

b. Data were taken by a research assistant on the first and 15th of each month.

c. No model was provided by the aide.

d. Five tokens were given to each girl who took a good shower.

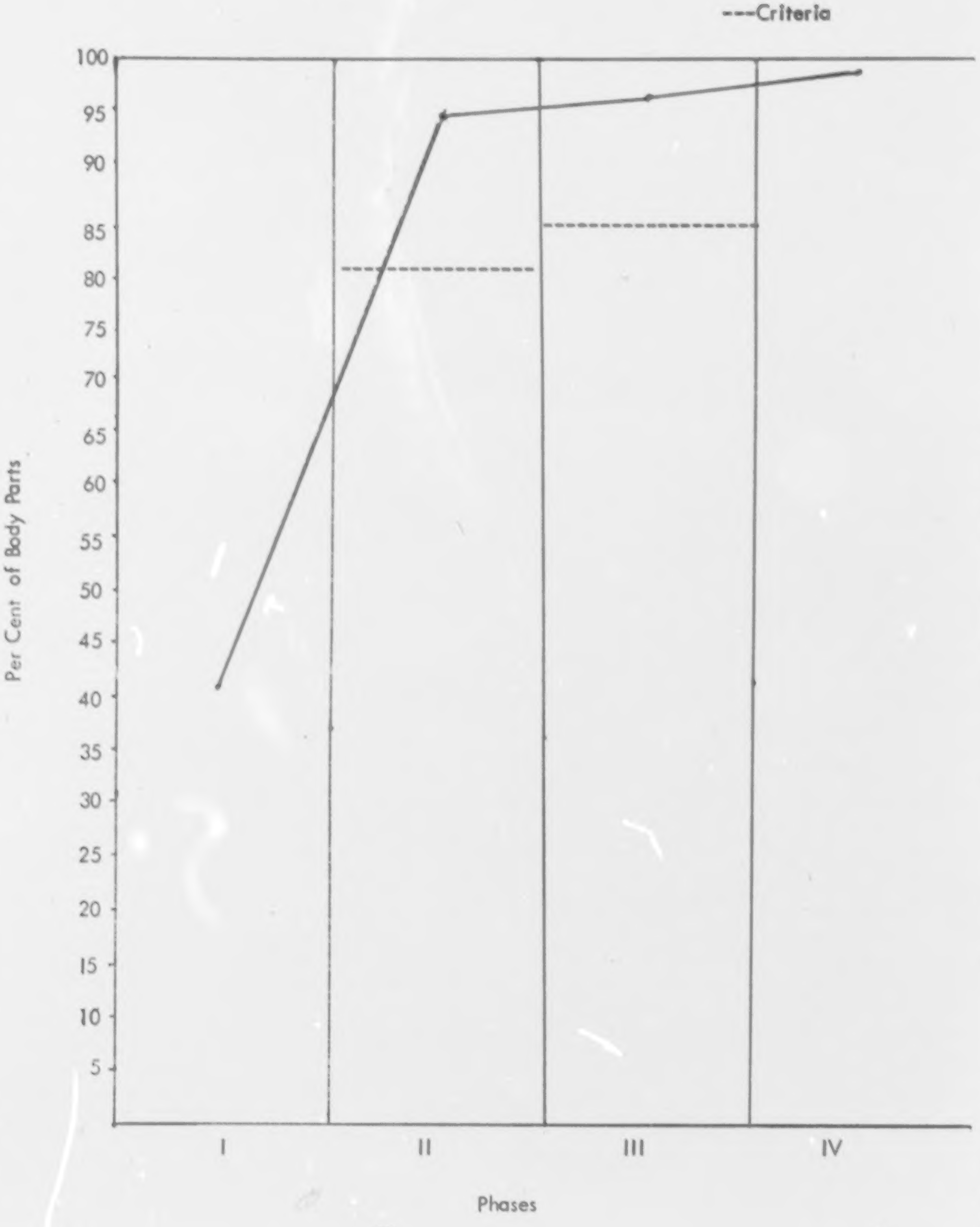
Phase V--The "Shower Song" was played during shower time with no model provided. No data were taken. Five tokens were given to girls who took good showers. This phase is still in operation.

The group mean per cent and group mean number of body areas washed during the four data collecting phases was as follows (also see Figure 14);

	Group Mean Per Cent	Group Mean Number
Phase I	42%	14.7
Phase II	94%	32.9
Phase III	96%	33.5
Phase IV	98%	34.4

Figure 14

Group Mean Per Cent of Body Parts Washed
(Mimosa "B") 1969-70



Shower Habits Mimosa "C" (Ages 16 - 21)

Abstract

Although the older girls had good habits as far as washing all body areas, they had regressed in maintaining good habits just prior and after the actual shower-bath. Six criteria were established: 1) use of soap; 2) use of toothbrush; 3) use of shower cap; 4) use of footbath; 5) use of deodorant; and 6) use of comb and/or brush. The techniques for reestablishing these behaviors were verbal instructions and reinforcement. Reinstatement occurred rapidly and was maintained.

The girls on Mimosa "C" did not require special training in the actual bathing of their body parts. These girls were older and had acquired these skills in an informal manner. However, observations indicated that the shower performance of the girls on Mimosa "C" had deteriorated. For this reason special procedures and criteria were introduced.

Disposal of Dirty Clothes--All clothing worn into the shower room should be placed into the proper dirty-clothing container. White clothes in a basket and colored clothes in the bag.

Use of Soap on Face--Soap on face, cleaned with a face cloth and soap rinsed off.

Body--Upper and lower part of the trunk should be soaped, cleaned with face cloth, and soap rinsed off.

Back--Soap on back (by S or other S), cleaned with face cloth, and soap rinsed off.

Use of Toothbrush--Brushes teeth using toothbrush and toothpaste.

Use of Shower Cap--Worn into the shower to keep hair dry.

Use of Footbath--Steps into footbath after showering.

Use of Deodorant--Applies deodorant under each arm.

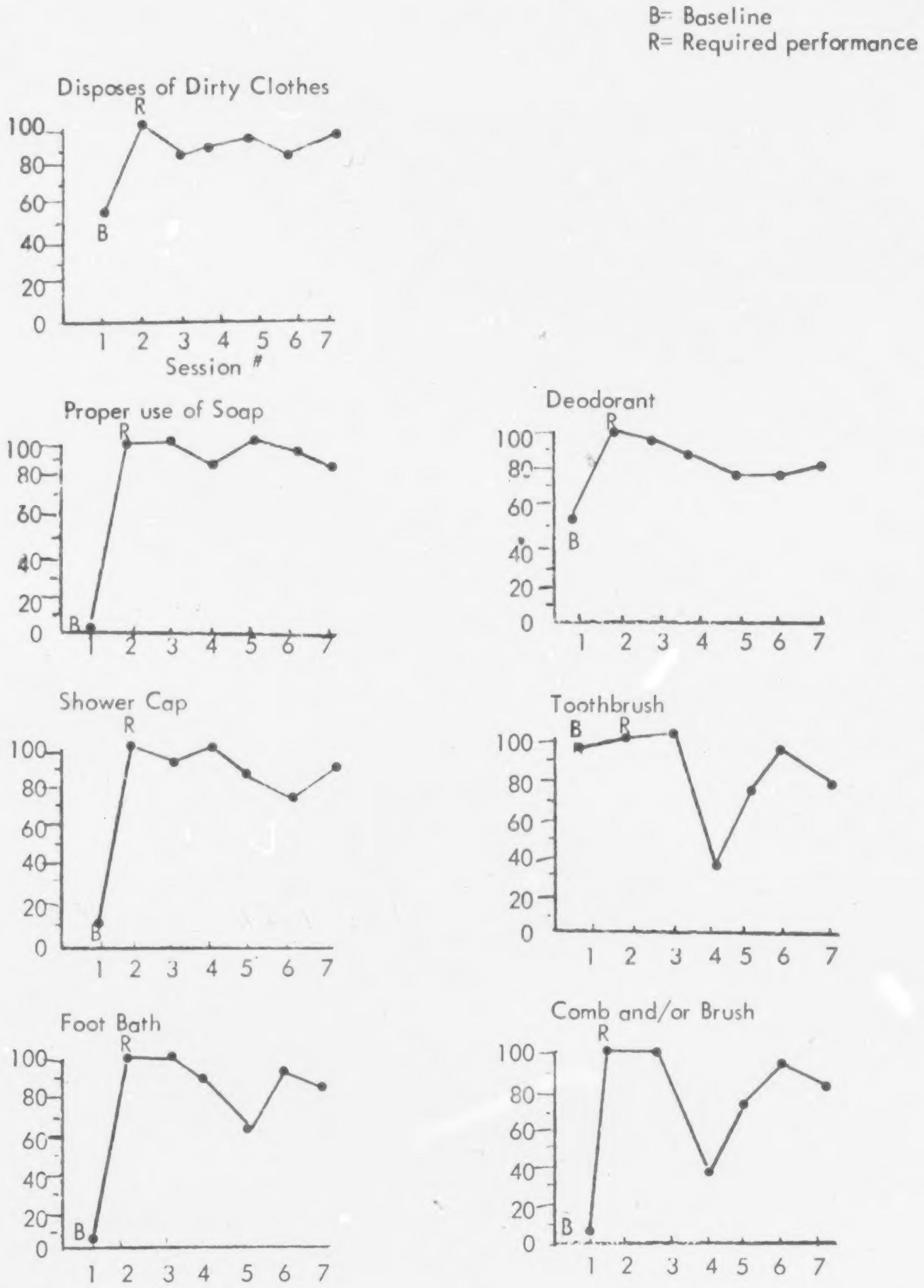
Use of Comb and/or Brush--Combs and/or brushes hair appropriately.

Observation indicated the girls were capable of adequate performance; therefore, it was decided to try to reinstate the skills as simply and rapidly as possible. The procedure consisted of verbally requesting adequate performance during one session and thereafter reinforcing the behaviors if the girls engaged in them voluntarily. (The results are shown in Figure 15.)

The first sessions consisted of gathering baseline data with a check-list. In session II, the girls were instructed in proper procedures and required to comply. All subsequent sessions represent

Figure 15

Good Shower Habits
$\bar{X}$ Per Cent Correct Group Response
(Mimosa "C") 1967-1970



occasions during which subjects were reinforced for emitting appropriate responses. Currently, children are being checked only once or twice weekly on a random basis. The data indicated that reinstatement occurred rapidly and was maintained.

Individual Problems

The general approach to group personal problems has proven to be adequate for most girls. However, it is often necessary to devise specific techniques to solve special problems. The following programs describe techniques used during the project with individual problems in the area of personal skills.

Weight Loss

Abstract

One individual treatment program in the area of personal skills was a weight reduction program. This particular subject gained 51 pounds while on a home visit. The techniques involved a restriction diet, special diet food was stocked in the token store and participation in an exercise program. Also, the S was reinforced daily with tokens for weight loss. Steady reduction occurred until she stabilized at the desired weight.

On the middle floor of the cottage there were a certain number of girls whose personal appearance was handicapped by obesity. The problem can generally be kept in bounds by prescribing a reduction diet. This procedure is carried out by the kitchen staff under the direction of a dietitian. With some children this does not prove to be effective.

E.M. was a child who normally weighed 101 pounds; however, she returned from her summer home-visit weighing 152 pounds. A restriction diet was immediately prescribed. With availability of food in the cottage store, a problem of reinforcing weight loss occurred. Special diet candies, cookies, gum, and soft drinks were purchased and stocked in the store behind a sign marked "diet." With the purchase of diet foods only and/or nonfood items, verbal and generalized token reinforcement was given.

As part of the Hospital's regular activity program, the patients were taken to the Hospital canteen one night a week. It was explained to the subject that since a diet was in progress, purchase of anything other than one soft drink and gum would not be allowed. Verbal reinforcement was then given for good selections and the weight loss progress was favorably commented upon.

Daily weight records were kept, and a graph showing progress was displayed on the cottage. After each weighing, 10 tokens for each pound lost were given accompanied by verbal praise. If weight was gained, a reminder to work harder at the diet was offered. If no weight was lost or gained, reinforcement in the form of verbal praise for not gaining was presented, but no tokens accompanied the praise (see Figure 16).

During this period it was discovered that a television program presented a half-hour daily show devoted to exercises. The subject was encouraged to exercise with the program and was given tokens about every two to five minutes of participation.

Weight declined steadily to 127 pounds, at which point a 17-day home-visit at Christmas occurred. At the return, weight was 135 pounds, the weight loss program was immediately reinstated, and she steadily lost until she stabilized at the desired weight.

Care of Soiled Clothing

Abstract

General procedures used for storing soiled clothing were not effective in dealing with two residents. Special techniques were undertaken to modify this behavior. These techniques included: 1) girls daily bring a change of soiled clothing to the aide; 2) this clothing was placed in individual laundry bags; and 3) reinforcement (tokens, points, trips to town, and praise). The data indicated these techniques were successful.

Two of the Mimosa "C" residents stored soiled clothing in their dresser drawers rather than depositing them in the laundry bags. In addition, they did not change clothing as often as would be desired. Reminding and taking away money or privilege points had no effect on this behavior. Accordingly, a treatment program was designed to aid in the modifying of the behavior.

Procedures for Subjects One and Two

1. Each girl was to bring an entire change of their soiled clothing once a day to the aide.
2. This clothing was to be put into individual laundry bags.
3. For doing this, the girls received five money points (equivalent to 5¢) each day.
4. If a girl failed to bring her complete change of clothing to the aide, no points were given.
5. When the girls continued this procedure for 15 consecutive days, they were to be taken downtown by the aide to spend the money they had earned.
6. The girls were also intermittently praised by the aide for wearing clean clothing.
7. During Phase I, the girls were reinforced with money points and social praise for bringing their soiled clothing to the aide.

In Phase II they received only praise.

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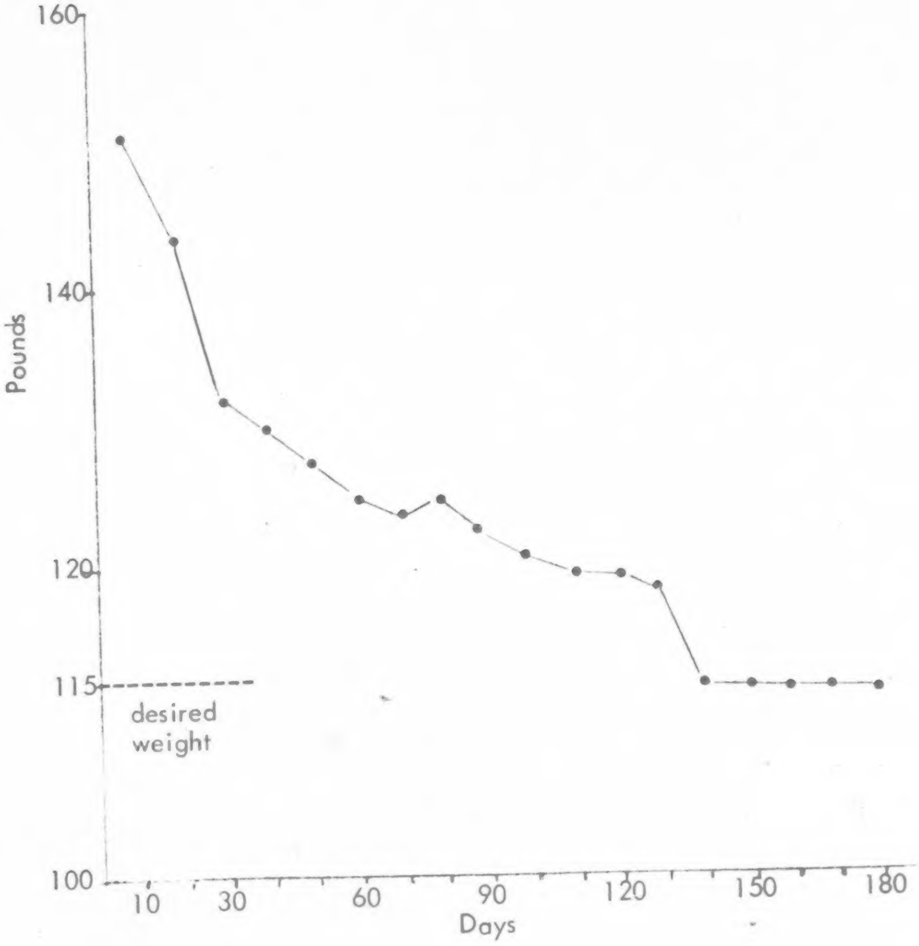
Figure 16

Record of Weight Loss Every Tenth Day
E.M. 1967

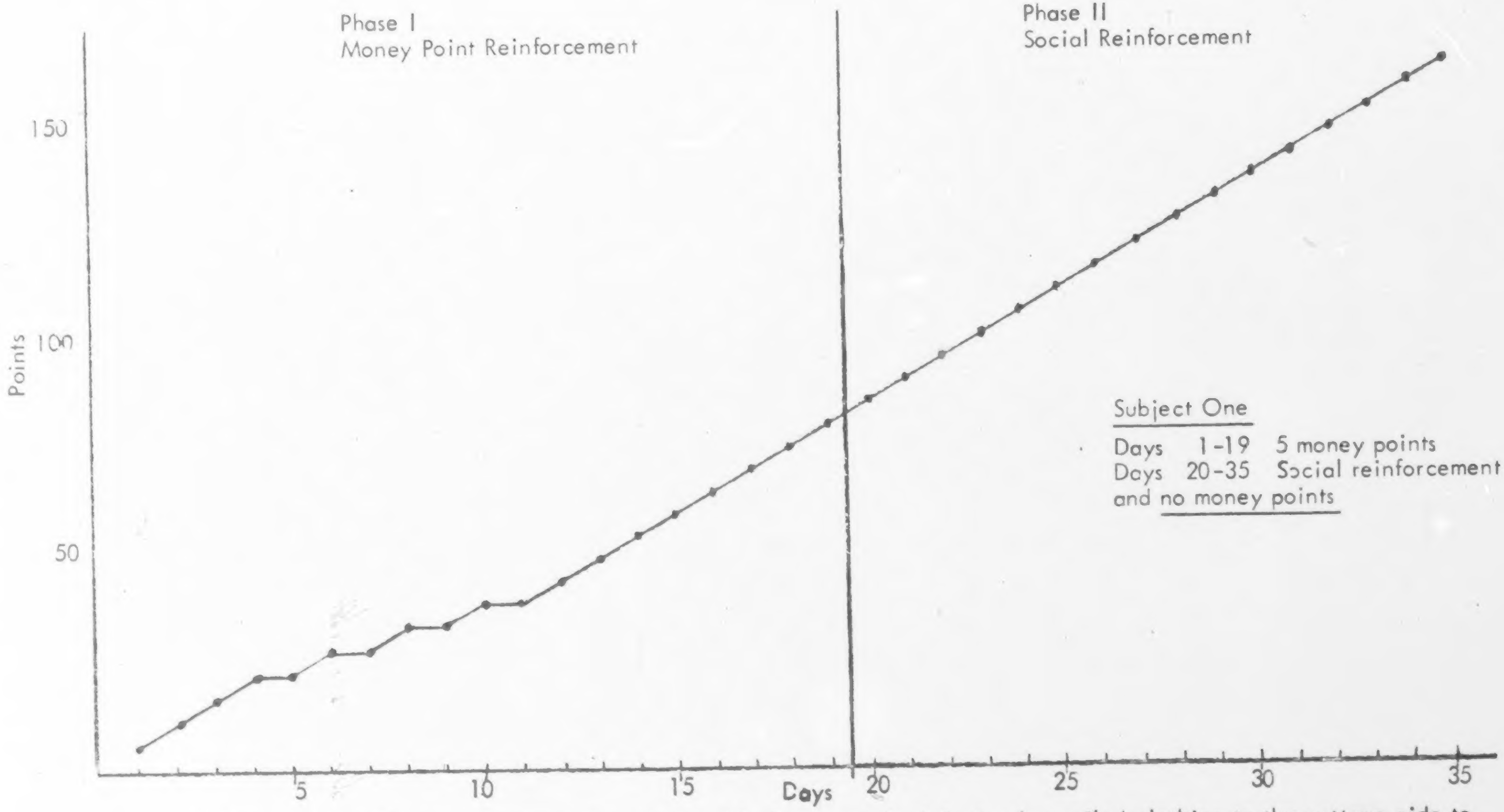


Results for Subject One--On four occasions this S did not bring her clothing to the aide and did not receive reinforcement (see Figure 17). Excluding these four occasions, the behavior was exhibited and reinforced. Following the 19th day, this girl was taken by the aide to town. She returned to the cottage displaying a blue necklace and bracelet which she had purchased with money received from the clothing program. Though only praise was given on sessions 20 - 35, the S continued to bring clothes to be checked.

Results for Subject Two--In Phase I, day 1-16, this S brought her clothing to the aide and received money points and praise (see Figure 18). However, on days 16 - 18 the S did not bring her clothing to be checked, and subsequently received no reinforcement. Phase II was begun on the 20th day and this girl still did not bring her clothing to be checked, this received no social reinforcement. However, on day 23, she began bringing her clothing for the aide to check and continued this, receiving only praise, until the end of the procedures. After she again began bringing her clothing to the aide, she was taken downtown by the aide.

Figure 17

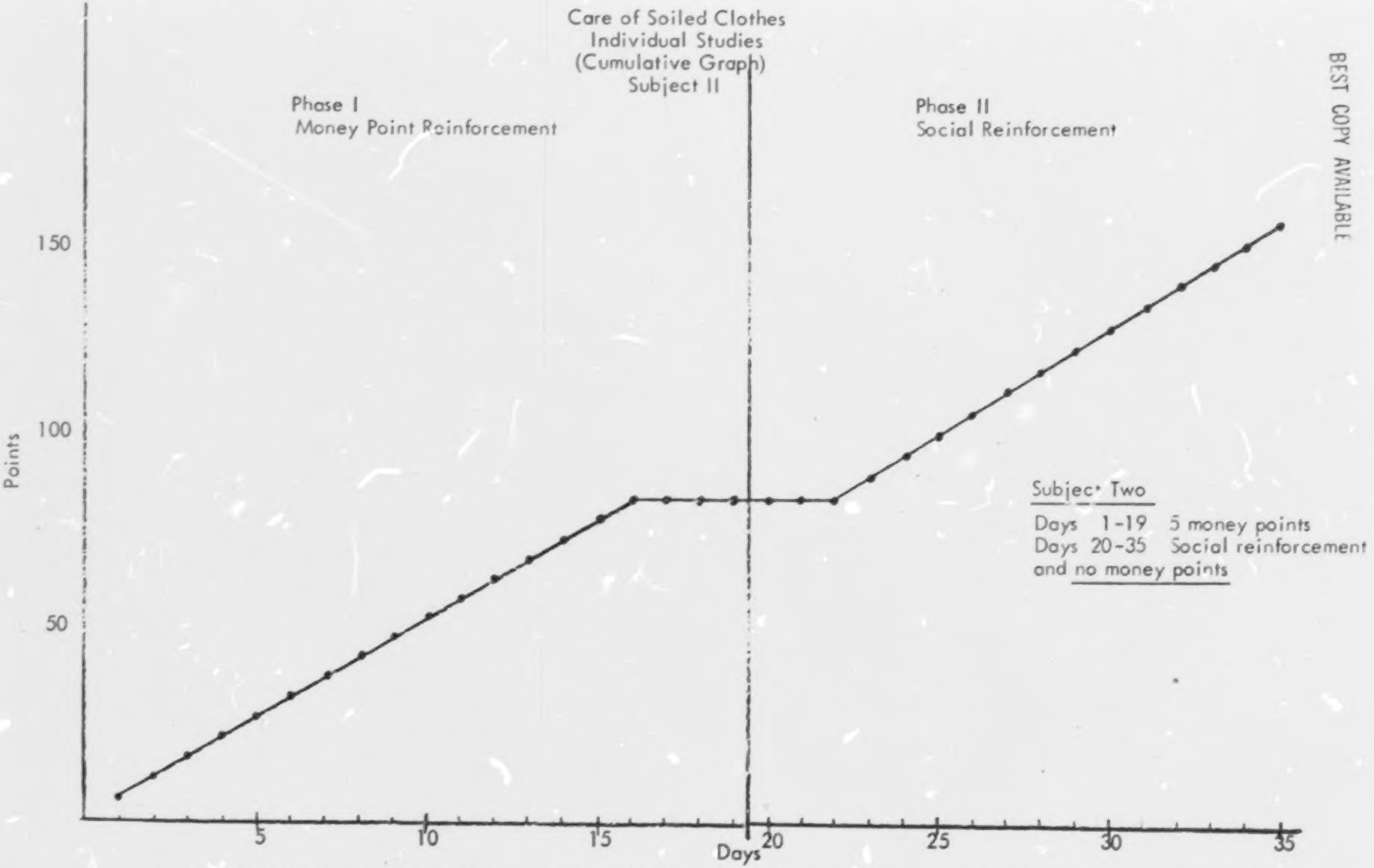
Care of Soiled Clothes
Individual Studies
(Cumulative Graph)
Subject I



In Phase I this subject received points exchangeable for money for bringing her soiled clothing to the cottage aide to be checked for placing it into a laundry bag. During Phase II only praise was given as a reinforcer.

Figure 18

Care of Soiled Clothes
Individual Studies
(Cumulative Graph)
Subject II



In Phase I this subject received points exchangeable for money for bringing her soiled clothing to the cottage aide to be checked for placing it into a laundry bag. During Phase II only praise was given as a reinforcer.

SOCIAL SKILLS

Of all the behaviors required for community adjustment, the most critical involve relationships with other persons. In addition to being the most important area of development, social behavior is the most complex and least understood. The staff of the project has tried to identify the most critical areas of social responding for retarded persons and planned training programs to implement the skills. The four major categories of training are communication, social interaction, eating etiquette, and management of group social behaviors.

Communication Skills

A casual visitor to the Mimosa Cottage would probably be more impressed by the speech and language of the residents than by any other characteristic. The speech and language development of untrained Level III (IQ 25-55) children is inadequate by any standard. Since the girls made obvious gains in other areas of behavior, their verbal behavior seem even more deficient. At least two major causes are worth reviewing:

1. The general observation that people are not going to behave any better than you expect them to behave seems to be a factor in this case. Institutional personnel tend to set their expectations far too low for all retarded children, in the case of such low-level subjects there seems to be almost no expectation of speech and language production. Efforts made by residents are not reinforced and maintained and there is little recognition of improvements when they do occur. An easily verifiable observation is that the psychiatric aide is often the only adult who can communicate with the children. She had learned their language rather than insisting that the children learn her's. There were other reasons in addition to the low standards set by Hospital personnel. The cottage staff did not have time to conduct a speech and hearing program. Another was that even if time were available it would be a highly unusual staff who possessed the skill to give the proper training.

2. Even though Parsons State Hospital and Training Center is fortunate to have an outstanding speech and hearing clinic, there are inherent limitations to the traditional approach to improving speech and language. This approach usually consists of sending the child to the speech clinic for one or two 20-30 minute sessions of therapy weekly. The rest of the child's waking hours are spent in an environment which does not support the efforts of the therapist. It is therefore easy to understand why progress is all too often negligible.

Articulation Training

Abstract

Articulation is a problem occurring in most retarded individuals. The articulation program, undertaken jointly by the speech and hearing department and the Mimosa staff, sought to: 1)

> provide a speech therapist in the living environment of the girls; 2) develop a program using words and phrases actually used by the children; and 3) design follow-up materials for use by research assistants. Greater improvement was noted in nonverbal communication than verbal communication. The next technique sought to increase the vocabulary of these girls. Procedures for training were: 1) object presented to the subject as the therapist named it; 2) therapist named an object which the child was required to find from several objects; and 3) child named the objects independently. After analyzing the data, it was realized that revisions were required. These revisions made it possible to shift from the speech therapist to a trained research assistant.

A language development program was instituted on Mimosa "B" cottage by the speech and hearing department in conjunction with the cottage project. Twenty girls were involved in the program, all of whom showed need for more effective communication ability. The classes took place on the cottage in groups of from two to four girls per class. The design of the program was to teach noun-verb relationships, to facilitate construction of simple phrases and sentences, and to facilitate verbal and nonverbal language ability. The program consisted of:

1. Bringing the speech therapist to the cottage to provide the therapy in the setting where the children spend the majority of their time.
2. Designing and presenting in a systematic manner programs in speech and language which consisted of words and phrases actually used by the children in their every-day lives.
3. Designing follow-up materials for use by research assistants on the cottage. Research assistants could then provide five-minute speech lessons once or twice a day outside the therapy room. With these beginning steps it was hoped that the cottage staff could provide an atmosphere which was totally supportive of speech and language.

Specifically, 10 nouns were taught at one time with an appropriate verb. (Example: food items--eating). Specific activities were centered around picture items which the children named, pointed to, answered questions about, marked, etc. Provisions were made for association with appropriate verbs which were also pictured. Correct responses were recorded and reinforced with tokens.

After the first month, during which the girls were seen daily, an analysis was made of the data accumulated. As a result of this evaluation, additional information was acquired to structure a more systematic approach to instruction and measurement. Revisions to the program were made accordingly.

The data indicated a general trend toward greater improvement of nonverbal communication than verbal communication. In the revised program, ten items and one verb were taught through nonverbal activities for a week and the same items verbally the second week. The girls were required to meet a high percentage correct nonverbally to proceed to the verbal activities and a high percentage verbally to go on to a new set of words. In this way a better contrast was made between actual verbal and nonverbal performance and better instruction could be provided.

During the second year of the project, emphasis was placed on vocabulary building. This program was initiated for 20 girls on Mimosa "B" cottage (see Table 7 for psychological evaluations). The purpose of this project was to design a language program to increase the vocabulary of moderately retarded girls by teaching them 40 useful nouns.

Materials

There were four sets of pictured-vocabulary words, each containing ten words.

Set I

1. apple
2. orange
3. banana
4. popcorn
5. ice cream
6. Fritos
7. cookies
8. candy
9. potato chips
10. Cracker Jacks

Set II

1. hotdog
2. pie
3. roll
4. beans
5. biscuits
6. hamburger
7. ham
8. nuts
9. french fries
10. salad

Set III

1. mashed potatoes
2. cake
3. bacon
4. cereal
5. spaghetti
6. butter
7. fried chicken
8. pancakes
9. green beans
10. soup

Set IV

1. chocolate milk
2. hot chocolate
3. iced tea
4. coffee
5. 7-Up
6. tomato juice
7. lemonade
8. orange juice
9. milk
10. coke

Each set contained pictures of the items printed on flash cards, and mimeographed sheets listing the ten words for that set. A large poster was provided which pictured a girl with a slot above her hand. The flash card could be inserted into this slot.

The girls were reinforced with tokens, trinkets, and paper stars which they could paste on a large wall chart. Each S received reinforcers for correct verbal or nonverbal responses to the presented stimuli. Correct articulation of the word was not required on verbal tasks, nor was any specific criterion established for advancing from one task to another.

The Ss were seen daily in small groups of two or three for 30-min. periods. The procedures for training the use and understanding of words were: 1) the girl was shown pictures of single objects which the therapist named, and the child was asked to point to the named object;

Table 7

Psychological Test Evaluations of Subjects Included in Vocabulary Building Project

Subject	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Measured Intelligence	IV	IV	III	+III	-V	IV	III	IV	III	IV	-II	II	IV	-III	III	III	III	II	III	-II
Adaptive Behavior	III	III	II	II	-IV	III	III	III	III	III	II	III	IV	-III	-III	III	III	II	III	II
PLS X Verbal X Nonverbal	44 49	34 43	33 42	50 54	33 49	43 49	39 61	43 49	44 43	42 48	50 58	43 43	36 50	48 56	48 54	52 47	59 56	51 58	52 57	48 52
PPVT	2-11	U-T*	2-8	4-0	U-T*	2-4	5-6	U-T*	4-7	2-6	4-1	2-6	3-1	4-10	12-5	3-2	6-4	6-3	5-6	3-11
Date of PLS (mo.) & PPVT (yr.)	5 65	3 64	5 65	7 65	3 65	5 65	5 65	3 63	4 63	6 65	8 65	3 65	2 63	3 65	3 63	4 63	7 65	5 63	5 65	4 63
ITPA (language age)											4-11			4-7	5-1	4-5	7-0	5-6	5-6	4-9
Boston U. SSDPT (No. correct out of 72 poss.)											53			39	59	30	62	65	60	62
Templin-Darley Artic. Test (No. correct out of 176 poss.)											136			154	154	86	101	55	90	73

* = untestable

2) the therapist named an object which the child was required to select from many objects; and 3) the therapist showed the girl an object, and said, "What is this?"

In an attempt to structure sentences using the nouns, some verbs were introduced. The verbs were not an original part of the 40 words, but were used only to promote understanding of the 40 nouns being presented. The verbs introduced were those which could be used directly with the nouns on the list, such as cooking, eating, holding, peeling, etc. At this point the poster was introduced, and sentences were constructed so that the S would still be using the noun, e.g., the therapist would say, "Give the girl the (apple) to (eat)." Then the therapist would say, "What is the girl (eating)?" which required a verbal response. Other tasks included giving a card to each girl in the group and asking, "Who has the ______?" which required only nonverbal participation. The responses were recorded on the mimeographed sheets.

The number of correct responses made by each subject for a given session were graphed (see Figures 19 - 28). The maximum correct responses for a session varied from 10-30, thus requiring correct responses to be recorded in percentages. The majority of the decreases in percentages of correct responses occurred when the S advanced from one task to another.

Absences were not recorded, thus a different number of trials for Ss in the same group may be noted on the graphs. Some Ss missed a phase completely because of absence.

Results indicated improvement for all girls in both recognition and naming objects, with higher performance in recognition than in naming objects.

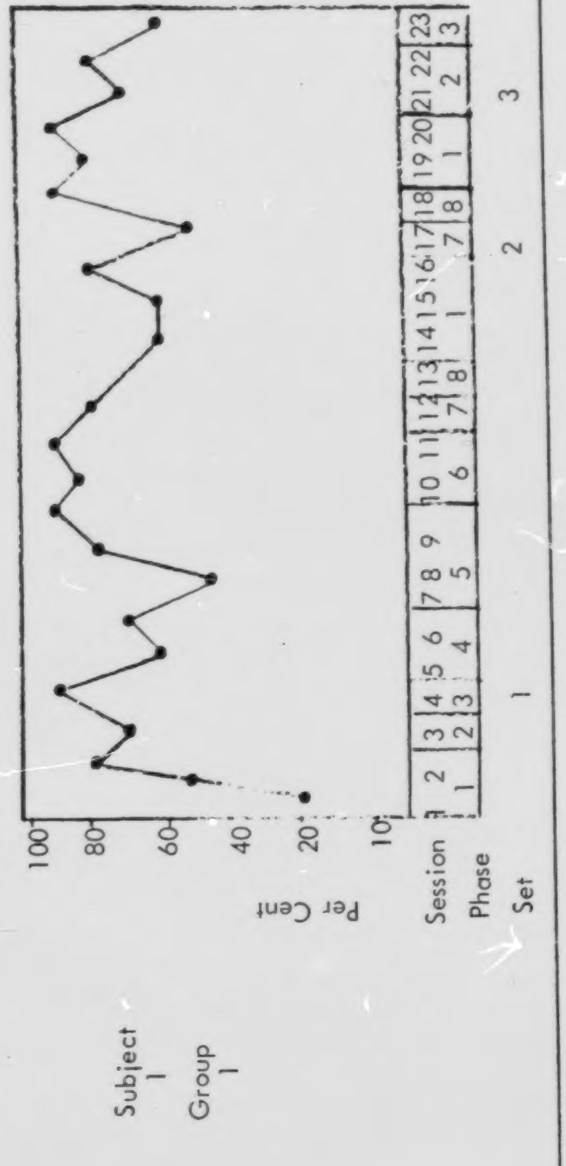
Subjects 2 and 5 (Figures 19 and 21) were essentially nonverbal. It can be noted from their performance that they performed highest on the nonverbal phases.

Subject 3 (Figure 20) had a severe to profound hearing loss and little or no communicative ability, that is, neither speech nor speech reading. This subject did not complete one set of 10 words. The performance was inconsistent and not highly beneficial to her. This subject had some inappropriate behavior, as far as the classroom situation was concerned. Subject 4 (Figure 20), who had a moderate hearing loss, was grouped with Subject 3, though the former was much higher in performance ability. Subject 4 was an excellent lip reader and had above average intelligibility in speech. She was instructed to help teach Subject 3, for which she received reinforcement in pennies. Subject 4 behaved very appropriately and Subject 3 imitated this behavior considerably.

Varying degrees of approximations were accepted with Ss 2, 3, and 5 (Figures 19, 20, and 21), since they usually had stereotyped vocal responses. If they produced the initial consonant sound and vowel for a given word, it was judged an approximation. Misarticulation for other Ss was not penalized.

Figure 19

Per Cent Correct Responses Vocabulary Building Project



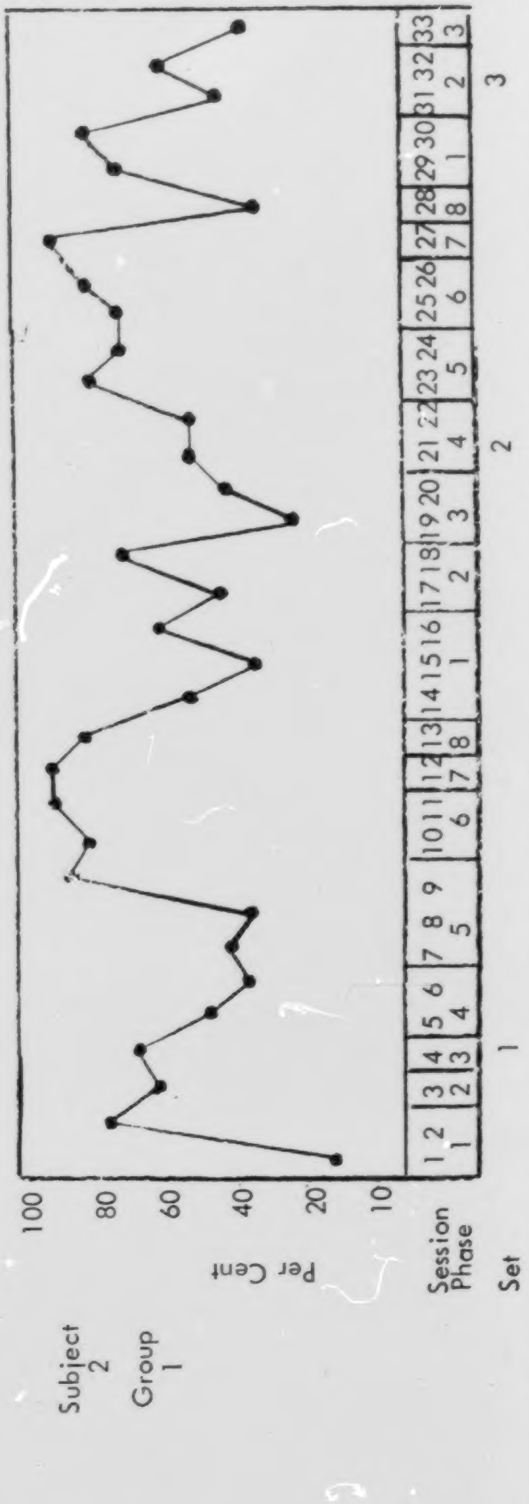


Figure 20

Per Cent Correct Responses Vocabulary Building Project

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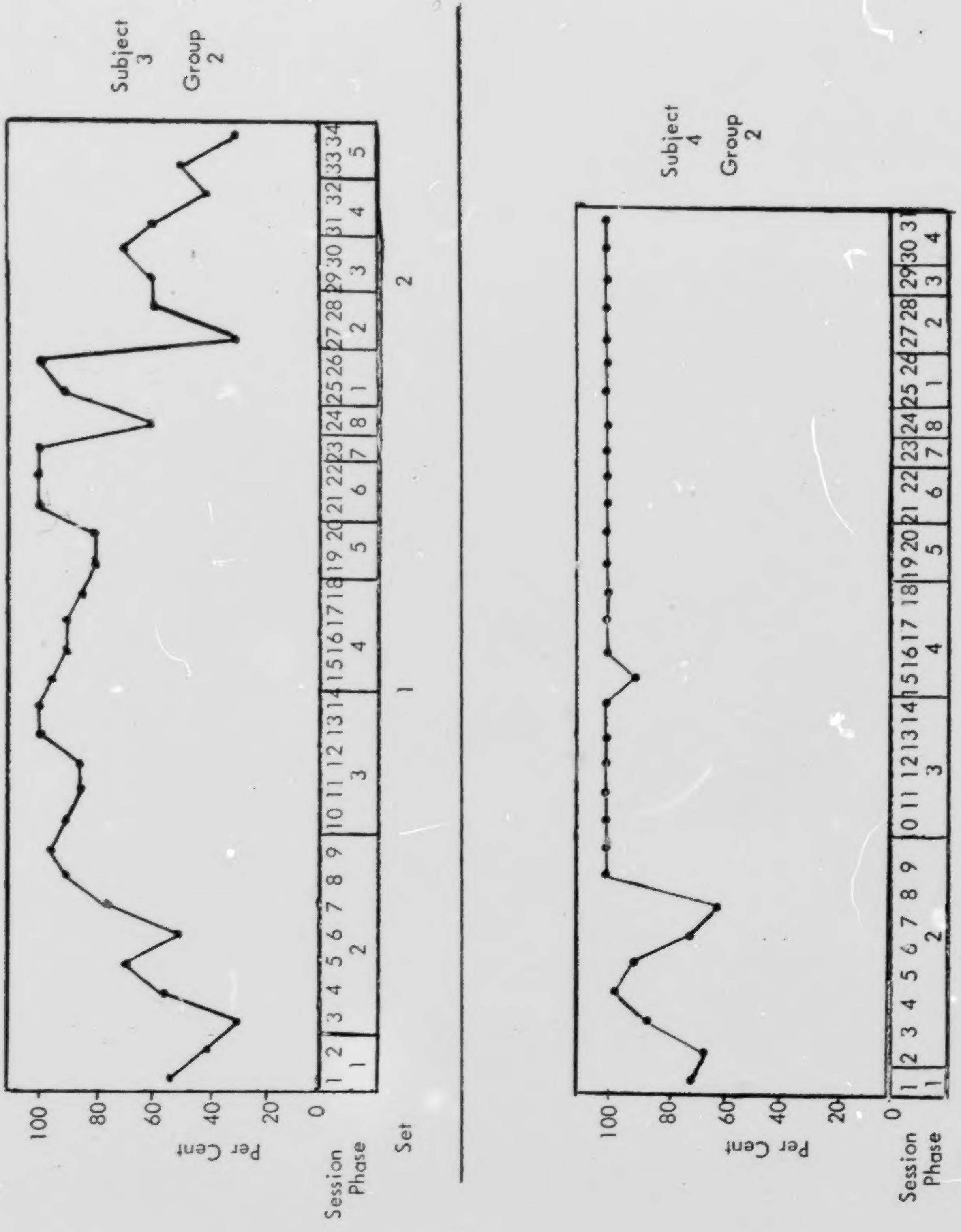


Figure 21

Per Cent Correct Responses Vocabulary Building Project

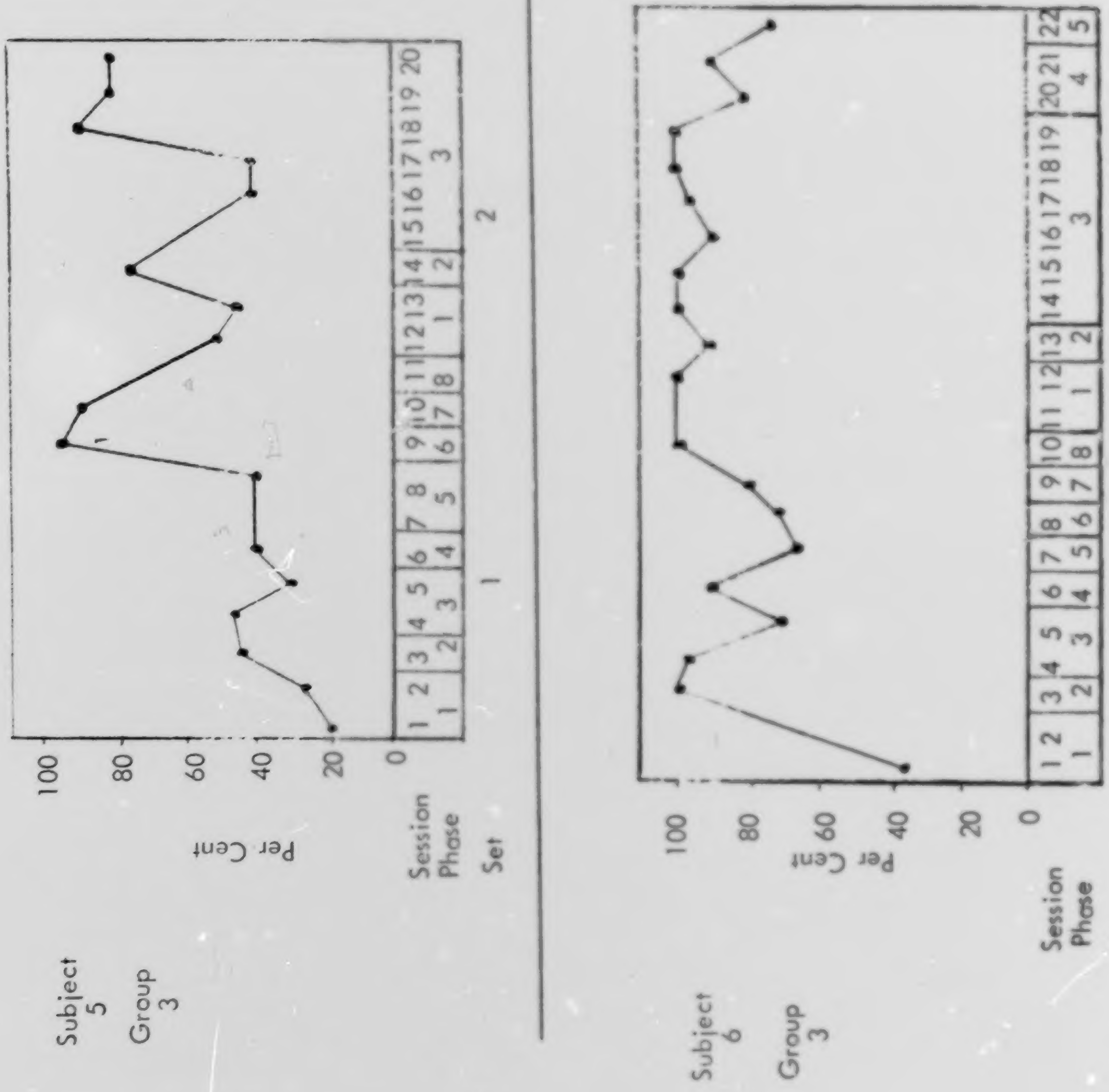
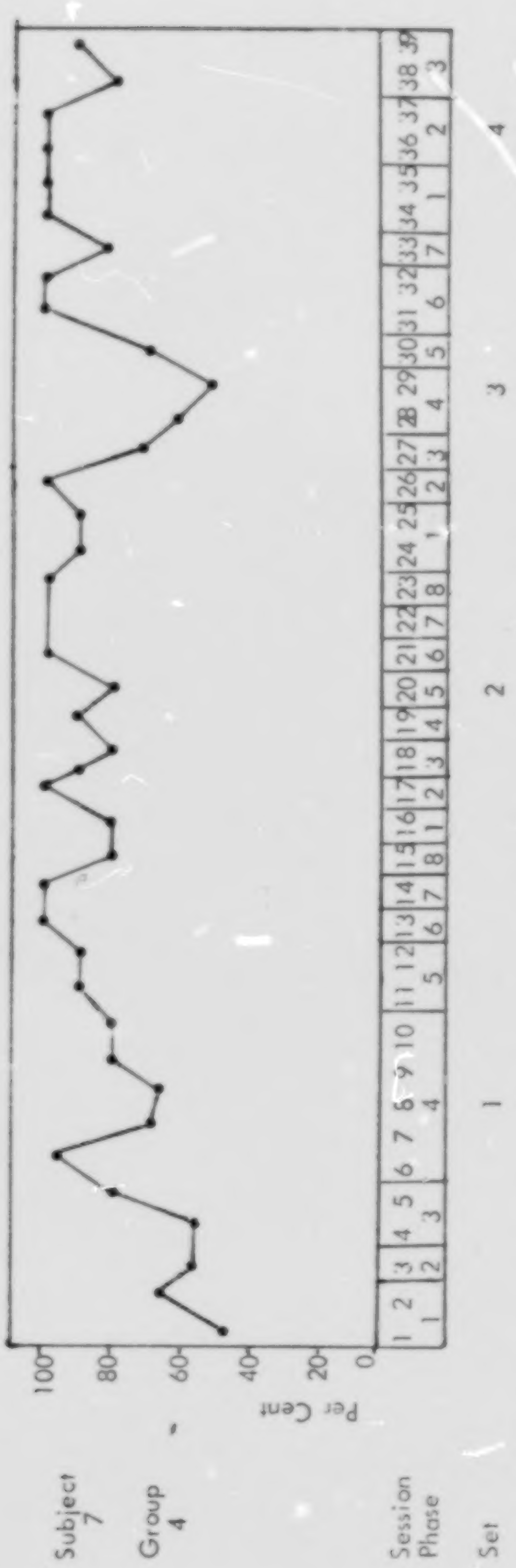


Figure 22

Per Cent Correct Responses Vocabulary Building Project



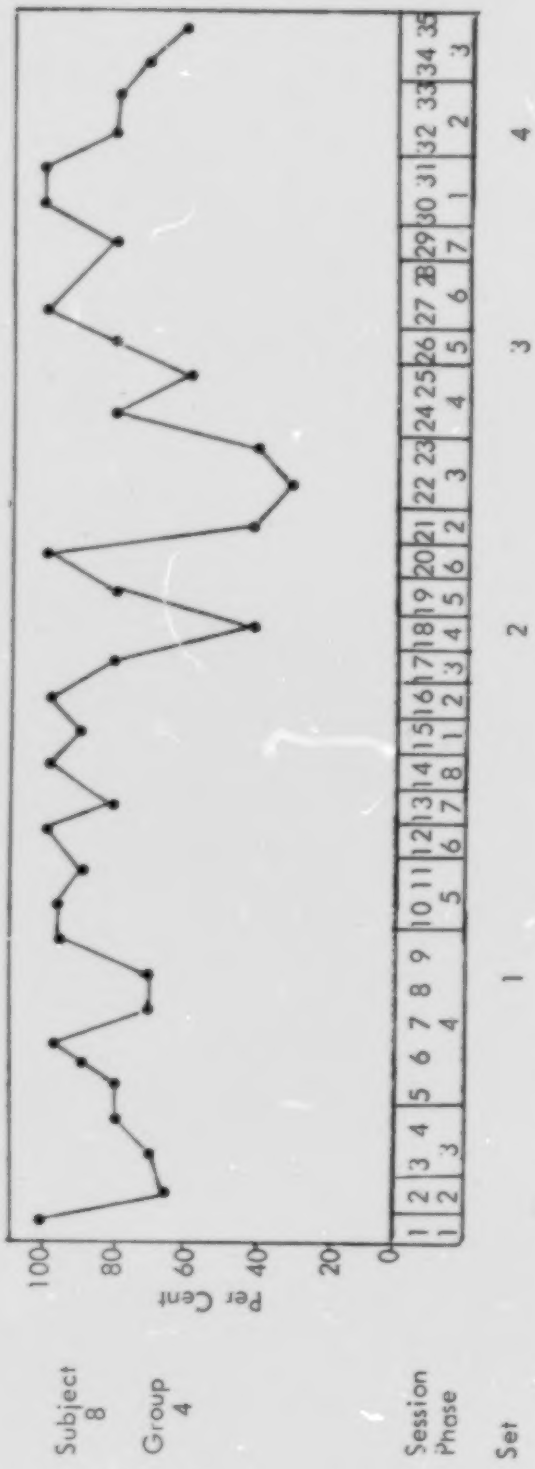


Figure 23

Per Cent Correct Responses Vocabulary Building Project

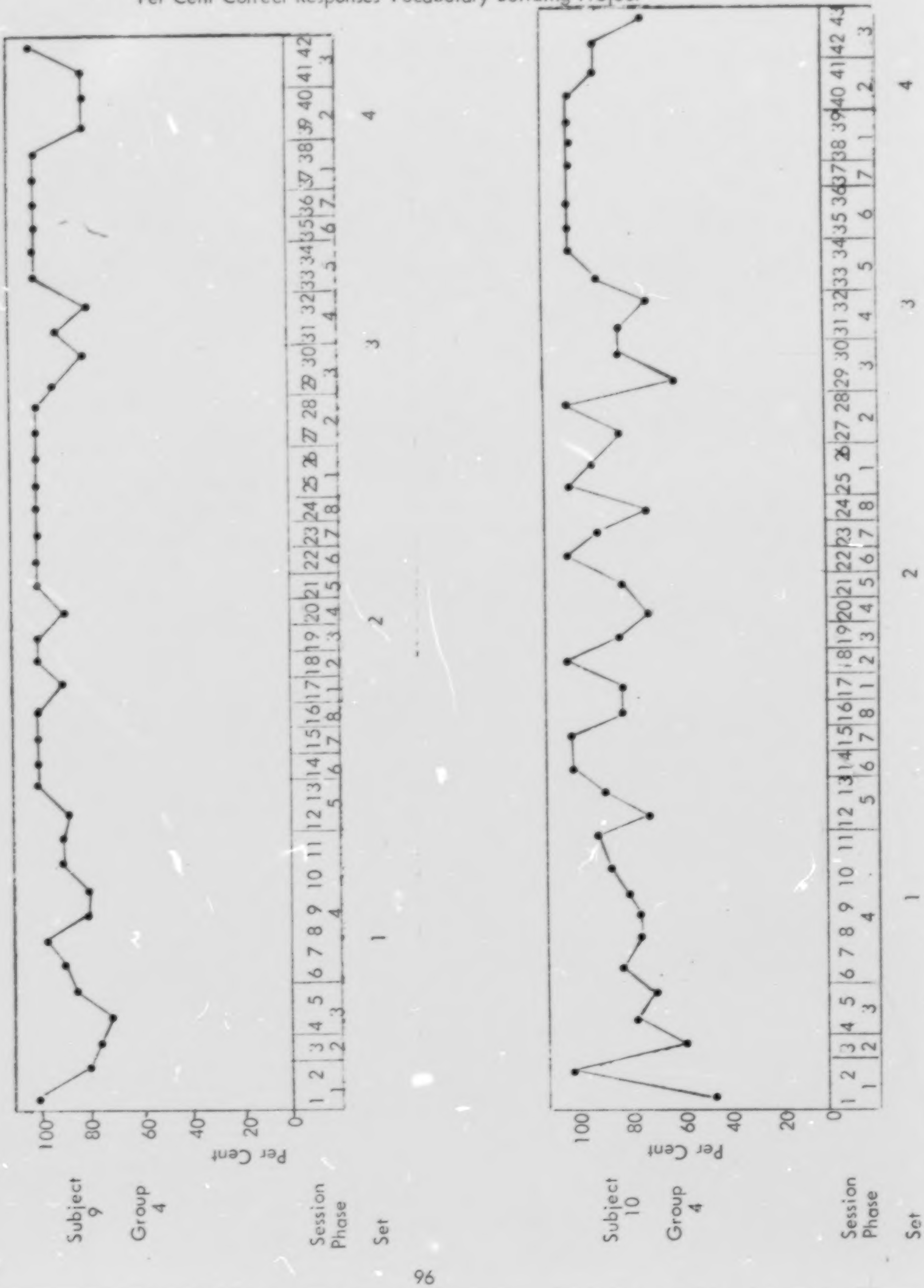


Figure 24

Per Cent Correct Responses Vocabulary Building Project

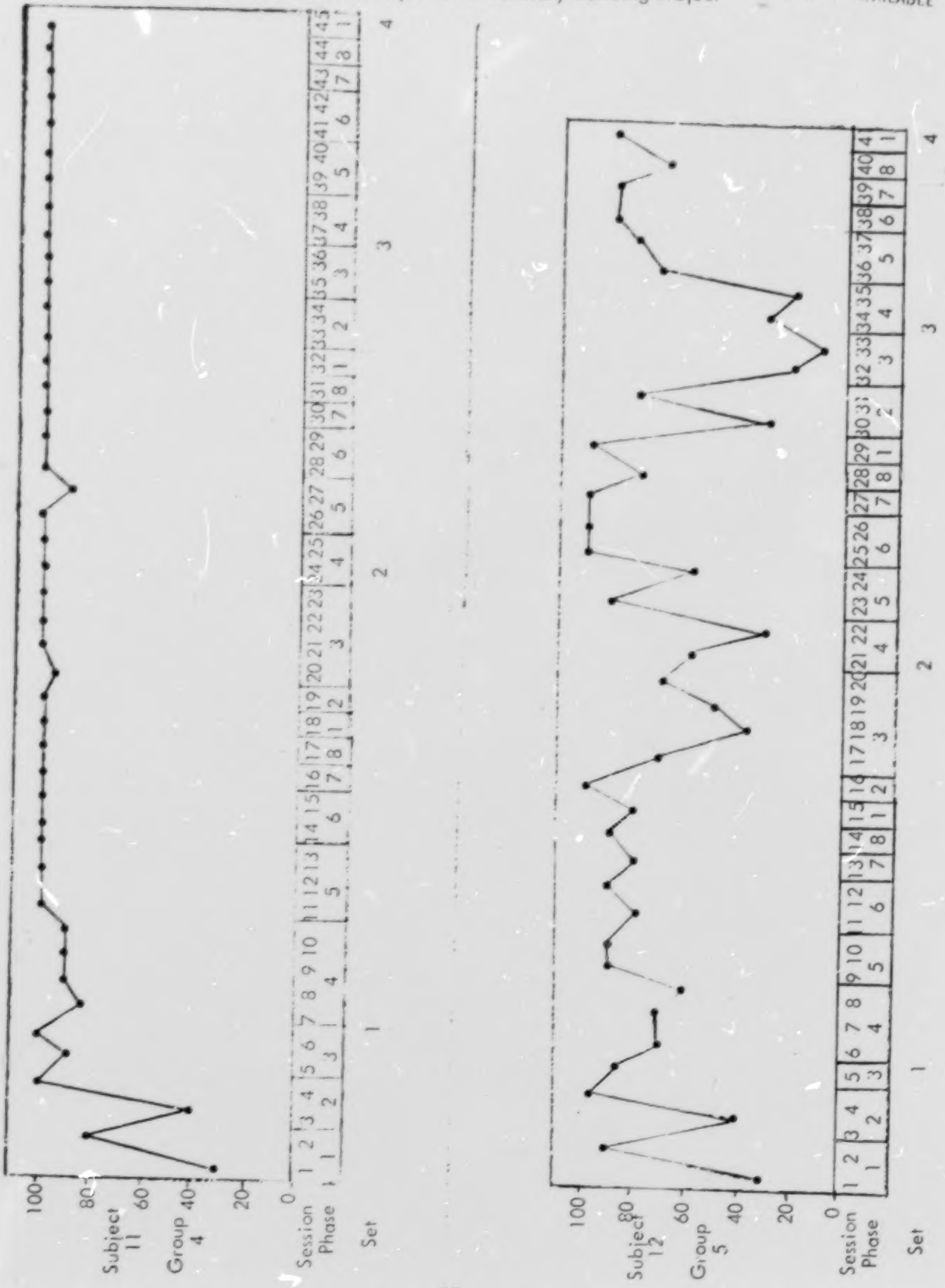


Figure 25

Per Cent Correct Responses Vocabulary Building Project

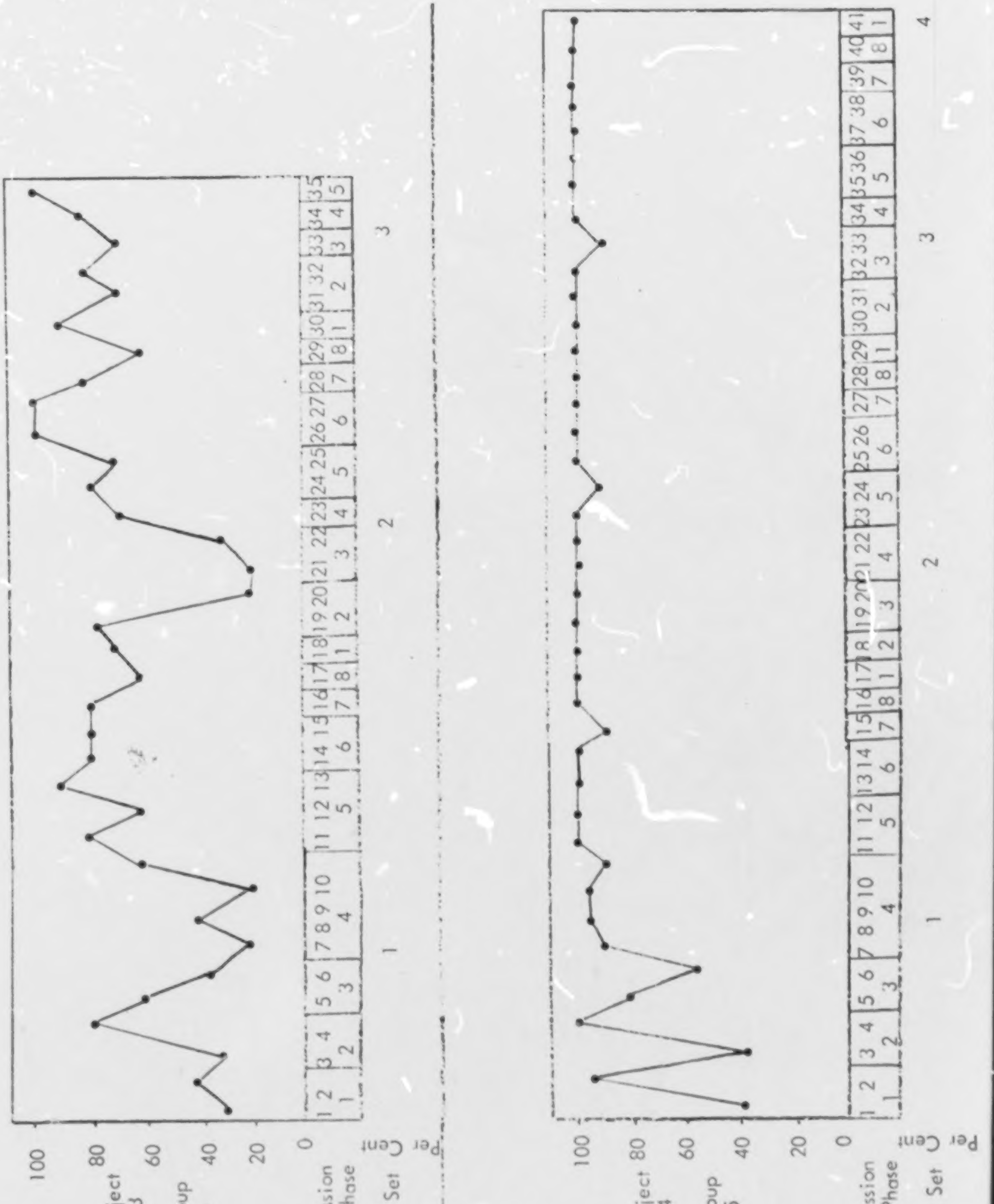


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Figure 26

Per Cent Correct Responses Vocabulary Building Project

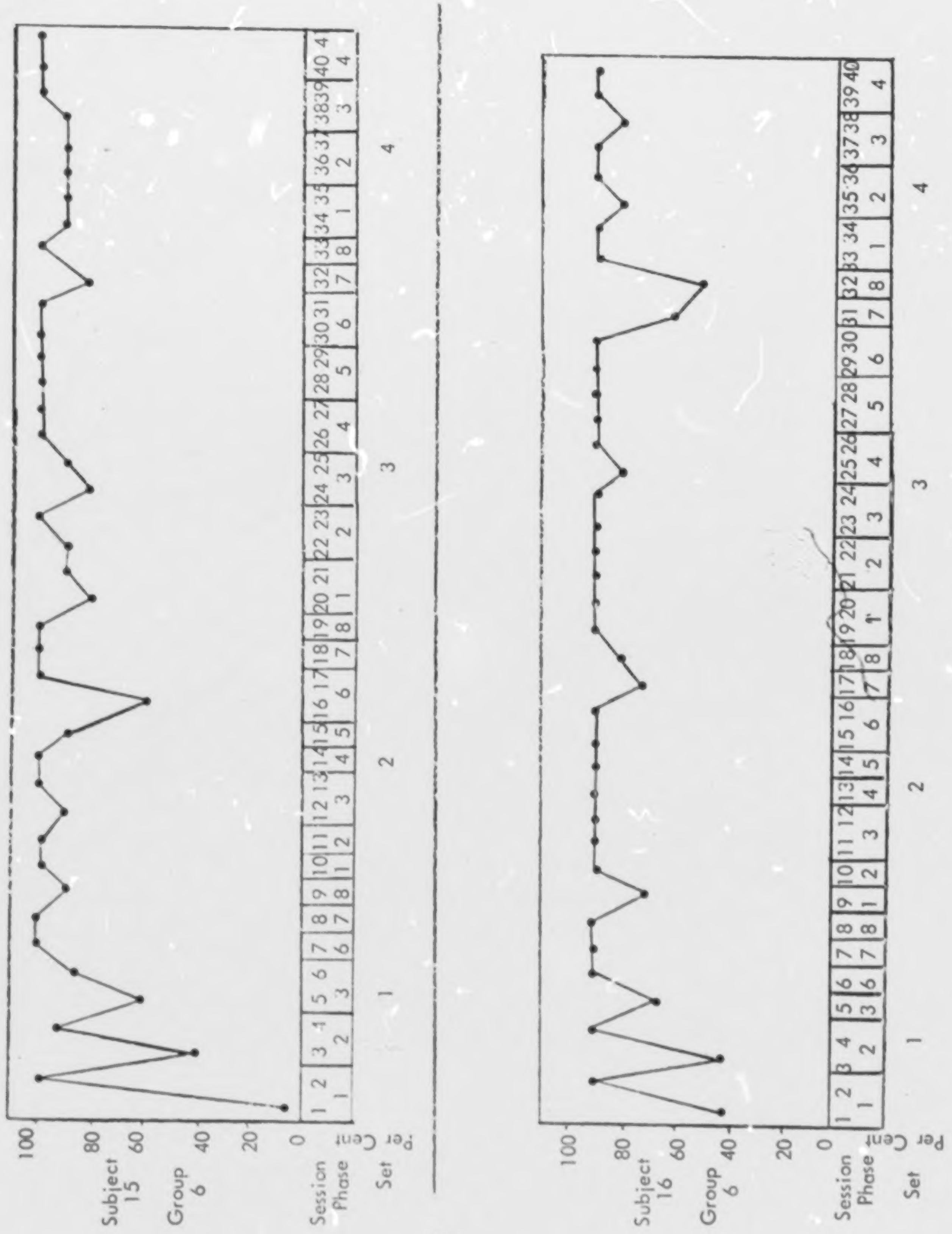


Figure 27

Per Cent Correct Responses Vocabulary Building Project

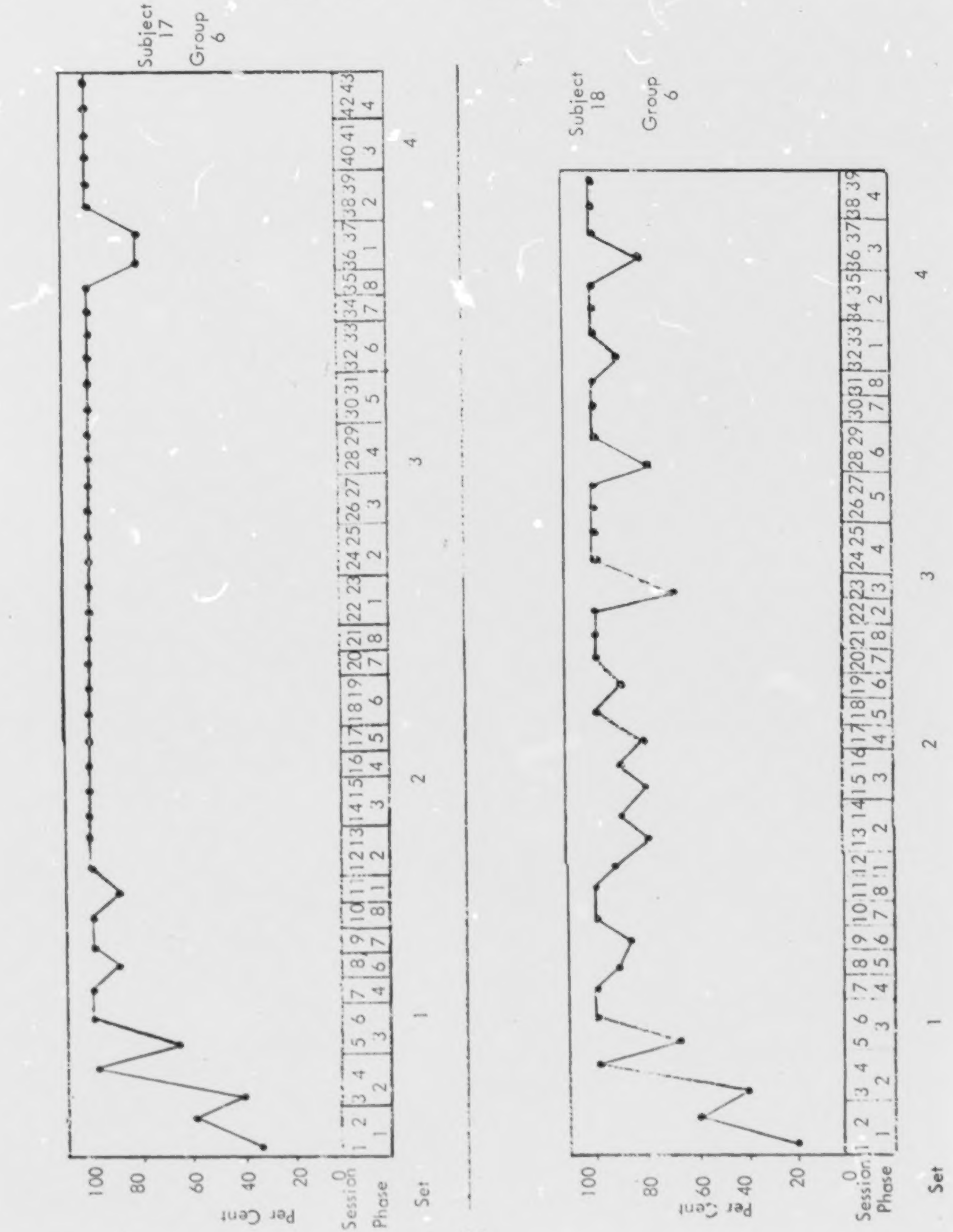
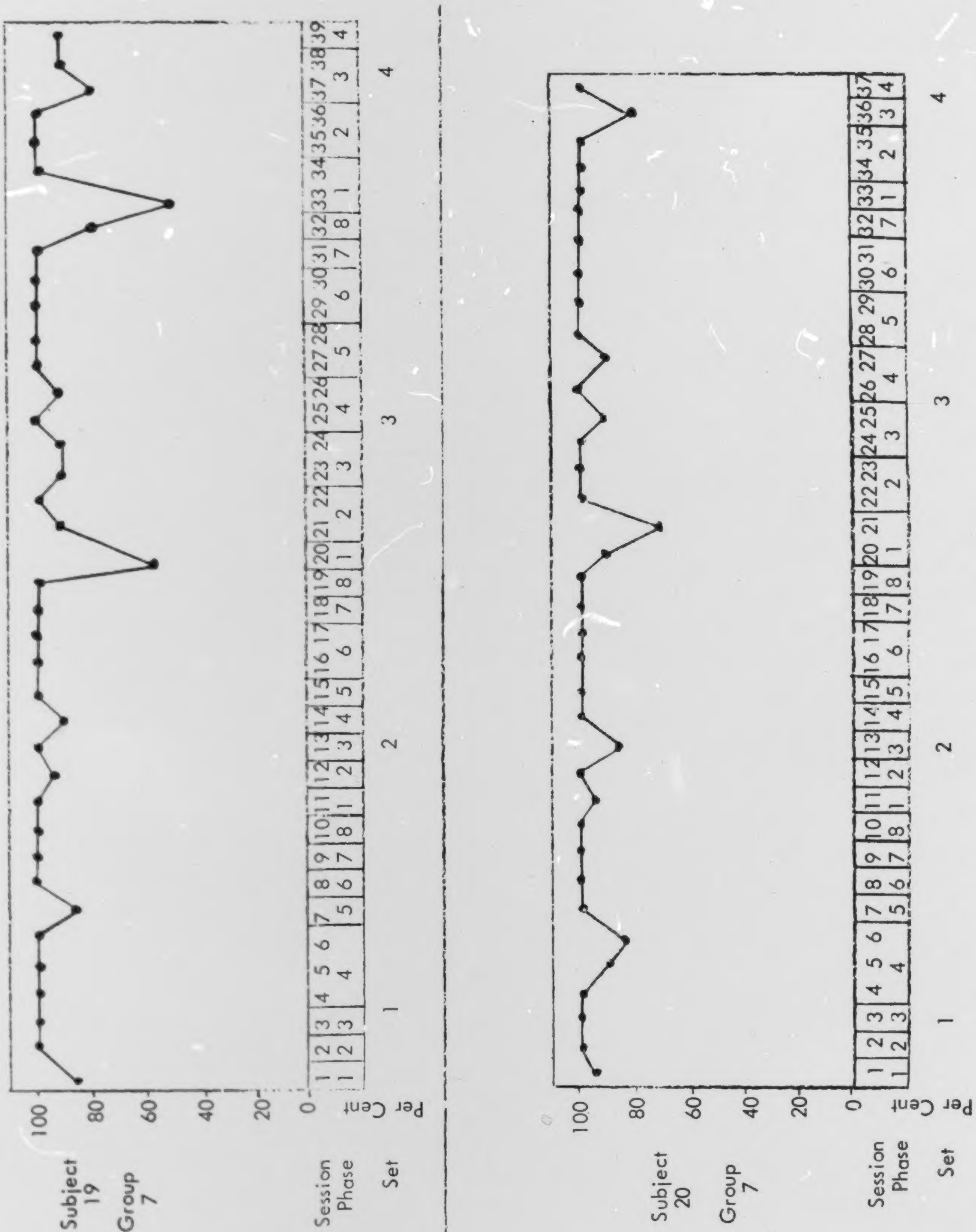


Figure 28

Per Cent Correct Responses Vocabulary Building Project



The utilization of this program pointed to some immediate problems and other problems were evidenced when the data were analyzed.

Paper stars were not adequate reinforcers and they were inconvenient to handle and dispense. The toys and charms were effective, but the Ss consumed valuable time making their selections. The tokens were the most expedient and reinforcing item used.

The materials were highly satisfactory. However, the manipulation of some materials presented difficulty. The phases which required the Ss to get out of their chairs to perform tasks proved to be time consuming and inefficient.

When the data were presented in graphic form, the absence of criteria and division between verbal and nonverbal tasks became critical factors. It was difficult to make direct comparisons between Ss in one group to another, as the number of trials per phase varied, as did the maximum number of responses per trial. Much fluctuation was observed between verbal and nonverbal tasks.

As a result of this study, the following revisions were made for the second language program:

1. Tokens were used as tangible reinforcers.
2. Both verbal and nonverbal baseline data were collected on all twenty Ss in the program, the ten Ss performing lowest on verbal tasks were chosen for the program.
3. Ss were seen individually so that more time could be given to individual problems, and so the examiner could be more accurate in presenting the materials and recording the responses.
4. There were ten phases, the first five nonverbal, and the second five verbal.
5. One phase was completed each day, and specific criteria were established for progressing from nonverbal to verbal tasks, as well as to a new set of words.
6. A similar program was designed for one S with a profound hearing loss.

Language Program II was derived from revisions of Language Program I. The posttesting revealed a high rate of learning among the Ss who completed it. The program was clearly and simply designed and was administered successfully by a research assistant who had no formal training in language instruction. This freed the speech therapist to work with problems which required professional training.

Baseline data were collected for over 80 nouns. Tests requiring both verbal and nonverbal responses were administered. The twenty Ss involved in the first language program were tested, and the ten lowest performers were chosen.

The 80 words were divided into eight sets of ten. On any given set, the Ss first performed four nonverbal tasks, and then all tasks combined. If they did not perform nine out of ten correctly on the combination, they repeated the entire sequence before moving to the verbal tasks. The same procedure and contingencies were used for the verbal set. One phase was given each day so, hypothetically, ten words could be learned in two weeks.

The mean per cent of correct responses on pretest and posttest are shown below.

Mean Nonverbal		Mean Verbal	
Pretest	Posttest	Pretest	Posttest
70%	94%	41%	82%

(For individual pretest and posttest scores, see Figures 29 and 30, and Table 8.)

One deaf *S* was in a special program. This *S* was taught 60 of 80 words using the same materials but different tasks. The tasks were chiefly matching printed words to pictures, and spelling the words using pictures as visual stimuli. This was essentially rote learning. Though no baseline data were obtained, thy *S* evidenced previous knowledge of only three words. After a five-month training period, she was tested over all 60 words which had been presented, and obtained 92 per cent correct responses on matching, and 56 per cent correct on spelling.

Language Training

Abstract

The Bereiter-Englemann[2] program was used to expand the language of the total population of Mimosa. The pilot program dealt with 44 girls, divided into experimental and control groups. An analysis of the data indicated a significant increase for the experimental group. After success with this pilot program, the aides and research assistants of Mimosa were trained to be language instructors.

Another communication problem common among the retarded is that they have extremely limited language usage. Bereiter and Englemann developed a language program to improve the language of preschool children. The program teaches vocabulary, sentence structure, articulation, and some logical particles (not, is, or, and). The Mimosa staff modified this program slightly during 1968-1969, and used it to train 22 moderately and severely retarded girls from Mimosa "A", "B", and "C". The modifications included the systematic application of reinforcement with tokens. Prior to the training program Bereiter and Engelmann's Placement Test was given to 44 girls. The girls were assigned to pairs according to their scores on the Placement Test. One member of each pair was randomly assigned to the training group. The other members were assigned to the control group.

---

[2] Carl Bereiter and Siegfried Englemann, *Teaching Disadvantaged Children in the Preschool* (Englewood Cliffs: Prentice-Hall, Inc., 1966).

Figure 29

Number of Correct Verbal Responses
(Vocabulary Building Project)

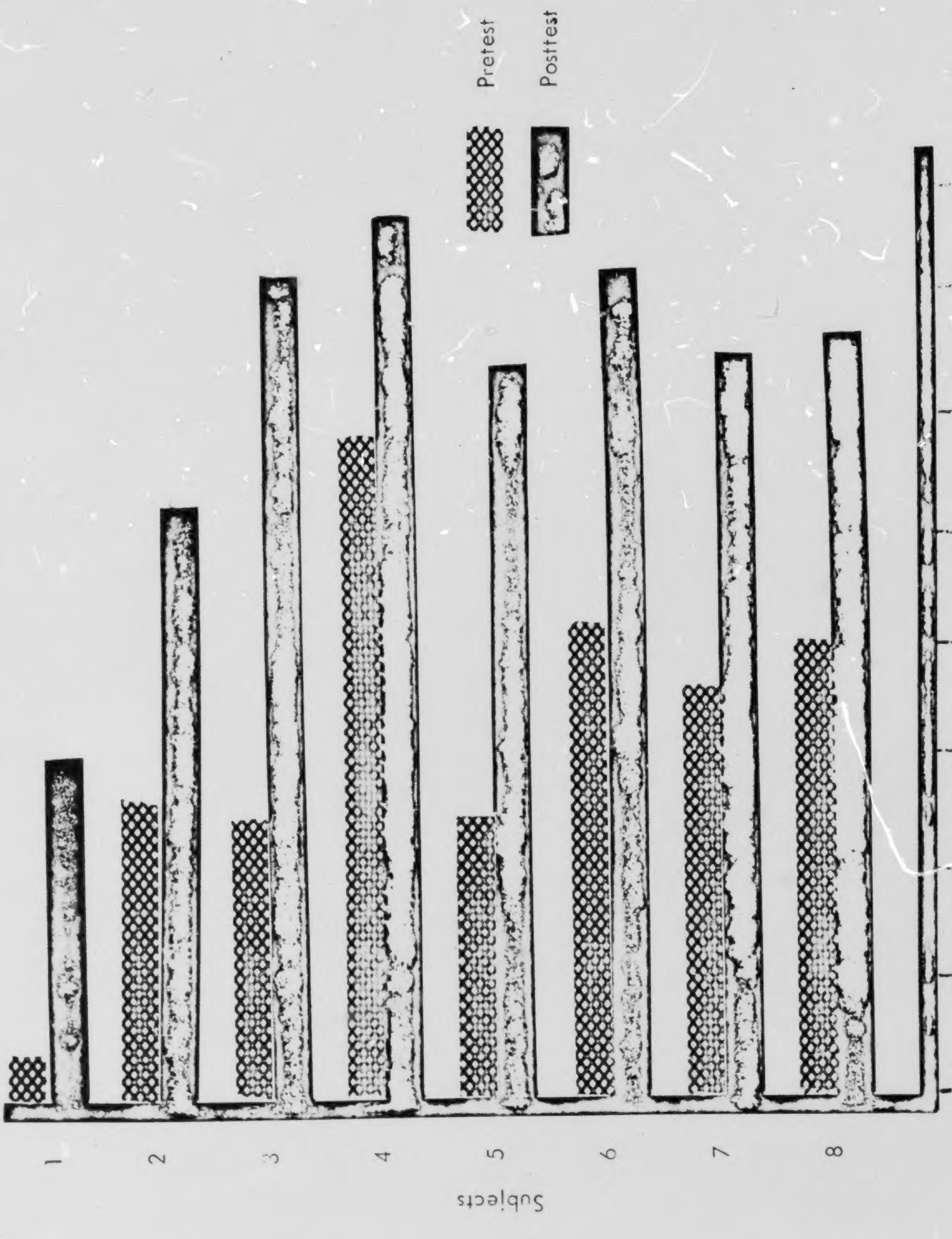


Figure 30

Number of Correct Non-Verbal Responses
(Vocabulary Building Project)

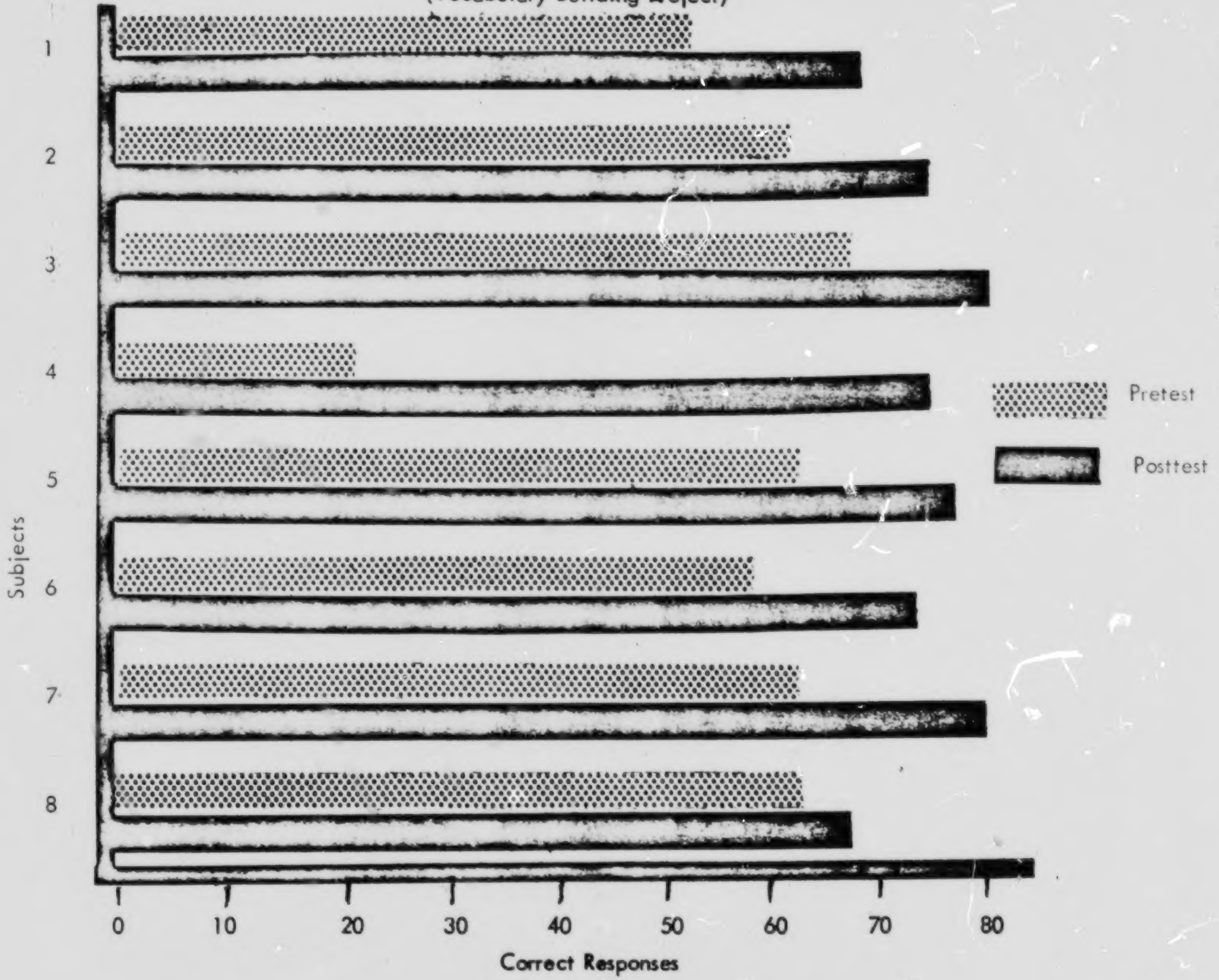


Table 8

Pre- and Posttest Scores

(Vocabulary Building Project)

	Verbal			Nonverbal		
Subject	Pretest	Posttest	Deviation	Pretest	Posttest	Deviation
1	4	45	41	53	68	15
2	30	52	22	62	71	9
3	25	73	48	68	80	12
4	56	79	23	22	74	52
5	25	67	42	62	76	14
6	43	74	31	58	74	16
7	38	66	28	62	80	18
8	40	68	28	63	78	15
$\overline{X}$	32.62	65.50		56.25	75.12	
%	41%	82%		70%	94%	
t = 5.06**				t = 3.54**		

** Significant at .01 level

The training group was given a twofold program. The first part of the program involved giving the girls 30 minutes of formalized language training for six weeks. During this six-week period the training group also received supplemental training in a combined recreational and musical setting. The informal session emphasized the language concepts taught in the Bereiter-Englemann program. The control group received their usual cottage training routine during the experimental sessions.

The Placement Test was given to both groups each week. A second test, The Basic Concept Inventory, was given to the experimental and control groups during the third week, and then each week through the sixth week. This test is more extensive than the Placement Test; it includes nearly all aspects of the language program.

The data were analyzed by a one trial t-test for matched pairs. Because both the experimental and the control groups increased from the third week to posttests on the Basic Concept Inventory, a t-test was run on their different scores from pretest to posttest. This indicated that the experimental group increased significantly more than the control group (t, .42, df,22, $P <.005$). An analysis of pretest and posttest scores on the Placement Test revealed that the experimental group increase was significantly greater than the control group (t=2.06, df=22, $P <.05$).

To determine if the information taught was retained, two follow-up tests were given after the posttest. The first was given one month later. Another was given two months after the posttest. The means on all four tests for the experimental and control groups are given in Table 9. The experimental group retained what they had learned.

Table 9

Mean Pretest, Posttest, and Follow-up for Experimental and Control Subjects in the Language Stimulation Program

	Placement Test				Basic Concept Inventory			
	Pre-test	Post test	Follow-up 1	Follow-up 2	3rd wk pre-test	Post test	Follow-up 1	Follow-up 2
X Experimental	41.9	45.3	44.9	44.5	44.0	56.5	53.3	53.7
X̄ Control	42.5	43.3	43.2	42.5	42.7	46.3	45:4	51.1

The data indicated that the program is useful with retarded subjects. However, the teachers speculated that longer periods of more intensive training would be even more effective. Students who have severe articulation problems, or do not imitate speech, should receive preliminary training before entering the program.

In August 1969, each adult (aides and research assistants) was trained in the technique used by the Bereiter-Englemann program. Subsequent to this training, each adult was assigned a group of girls to train. The language teachers knew exactly which aspect of language that each individual girl was involved in. This helped to maintain a constant language environment, thus increasing the use of proper language throughout the day.

Social Interaction

Typically, institution populations are characterized by an extremely low ability to interact with their environment and peers. The girls of Mimosa Cottage were no exception to this general rule. Being able to initiate leisure time activities, play cooperatively, and relate to the opposite sex are critical areas of social development. Specific programs were undertaken in these areas.

Leisure-time activities

Abstract

> Initially, the girls on Mimosa did not know how to appropriately play with games, toys, etc. Systematically, the girls were trained and reinforced to play appropriately. Gradually, these activities became self-reinforcing and external reinforcement was reduced to an intermittant schedule. These activities did not require cooperation or interaction between the girls; therefore, the next step was to design games which would emphasize cooperation and interaction between small groups of girls.

Game-like and educational materials were introduced into the cottage environment, and the girls were taught how to manipulate the various activities. Social and token reinforcers were presented to the girls for engaging in such activities. Gradually, adult supervision was withdrawn, except for several scheduled periods. Token reinforcement was then reduced to a low, intermittent schedule. It was assumed that the materials and social interaction with peers would provide enough stimulus and reinforcing properties to maintain the activity, even when adults were not present.

The leisure-time activities project began in 1966. Since this was the beginning of the project, baseline data were not obtained. Nevertheless, it seemed desirable to determine the percentage of Ss engaged in activity, and the type of activities in which they were engaged. A check list of activities was outlined, and observations were obtained twice each morning, afternoon, and evening (see Exhibits 21 and 22).

The results indicated: 1) about 60 per cent of the Ss were engaged in activity, when data from all observation periods were averaged, 2) activity occurred more often in the presence of others than alone, 3) materials were generally used appropriately, 4) self-care, games, and dancing were the primary activities of the girls, and 5) a large proportion of the activity was in the presence of others, although it was more frequently parrellel than interactive (see Figures 31-33).

The data obtained seemed to indicate that moderately retarded, adolescent girls could be maintained in productive activity. The present project did not require cooperation or interaction between the girls. Therefore, games and reinforceable tasks were designed which required cooperative interaction.

Animal Race: This game was designed for moderate to severely retarded females but could also be used for pre-school through second-grade children.

Materials used were 8-½ x 11 inch sheets of paper, cardboard backing, paste, and plastic covering (poster paints, optional).

A ditto master was made of each of the five cards. On each master was drawn a 9½" x 7½" rectangle, and within the rectangle were drawn three vertical lines from top to about ½ inch from the bottom at every 1 5/8 inch interval. At the top, 2½ inches were left for a picture of an animal, and 14 lines were drawn horizontally at ½ inch intervals to the bottom of the page. The picture of the animal was the starting point, and the last line drawn was the finish line. Pictures of the animals were drawn or traced in the 1 5/8" x 2½" place left at the top of the page (see Exhibit 23). The pictures were arranged as follows (it is not necessary to follow this particular order).

Card 1	cat	horse	mouse	rabbit
Card 2	dog	cow	duck	turtle
Card 3	chicken	pig	kangaroo	bear
Card 4	turkey	fish	monkey	lion
Card 5	bird	giraffe	seal	elephant

Exhibit 21

Check List, Code, and Criteria for Activity Observations

Code

S - The girl was engaged in this activity by herself

O - The girl participated in this activity with others

+ - She utilized materials in the manner intended

- - She utilized materials in a manner not intended

X - For no activity column only

Criteria for each item

1. Cleaning - Any cleaning of the cottage, bins, dresser drawers, picking up papers, etc.

2. Sewing - Any sewing, pinning, or working on material
   Ironing - Engaged in ironing

3. Self care - Included shoe polishing, fixing hair, cleaning fingernails, washing hands, etc.

4. Academic - Included reading, writing letters or homework, arithmetic (numbers), spelling, etc.

5. Puzzles - Actual working of puzzles

6. Coloring, painting, drawing - Any work with pencil, paint brush, or crayon not directly related as a craft

7. Magazines - Eyes orientated toward magazine

8. T.V. - In television room when it was on

9. Record player - Engaged in listening or operating record player

10. Dancing - Dancing with music from record player or T.V.

11. Games - Included cards, table games, sport-type games, floor games, catch, etc.

12. Blocks - Engaged in building or stacking blocks

13. Cutting paper - Using of scissors to cut paper

Exhibit 21 (cont.)

14. Crafts - Ceramics, painting by number, making useful or decorative items

15. Cooperative conversation - Talking appropriately to peer or adult and not engaging in an activity already mentioned

16. No activity - Aimlessly walking around, sitting in chair looking around, rocking, etc.

Examples

1. A girl sitting at the table along with a magazine; she tears the pages in strips. The code would be (S-) under magazine. She was sitting alone and was not using the magazine as it was intended.

2. A girl sitting at the table alone playing solitaire. The code would be (S+) under games.

3. Four girls working on sewing. The code would be (O+) under sewing.

4. Two girls yelling at each other across the room. The code would be (O-) under cooperative conversation.

5. A girl sitting in a chair watching two girls putting a puzzle together. The code would be (X) under no activity.

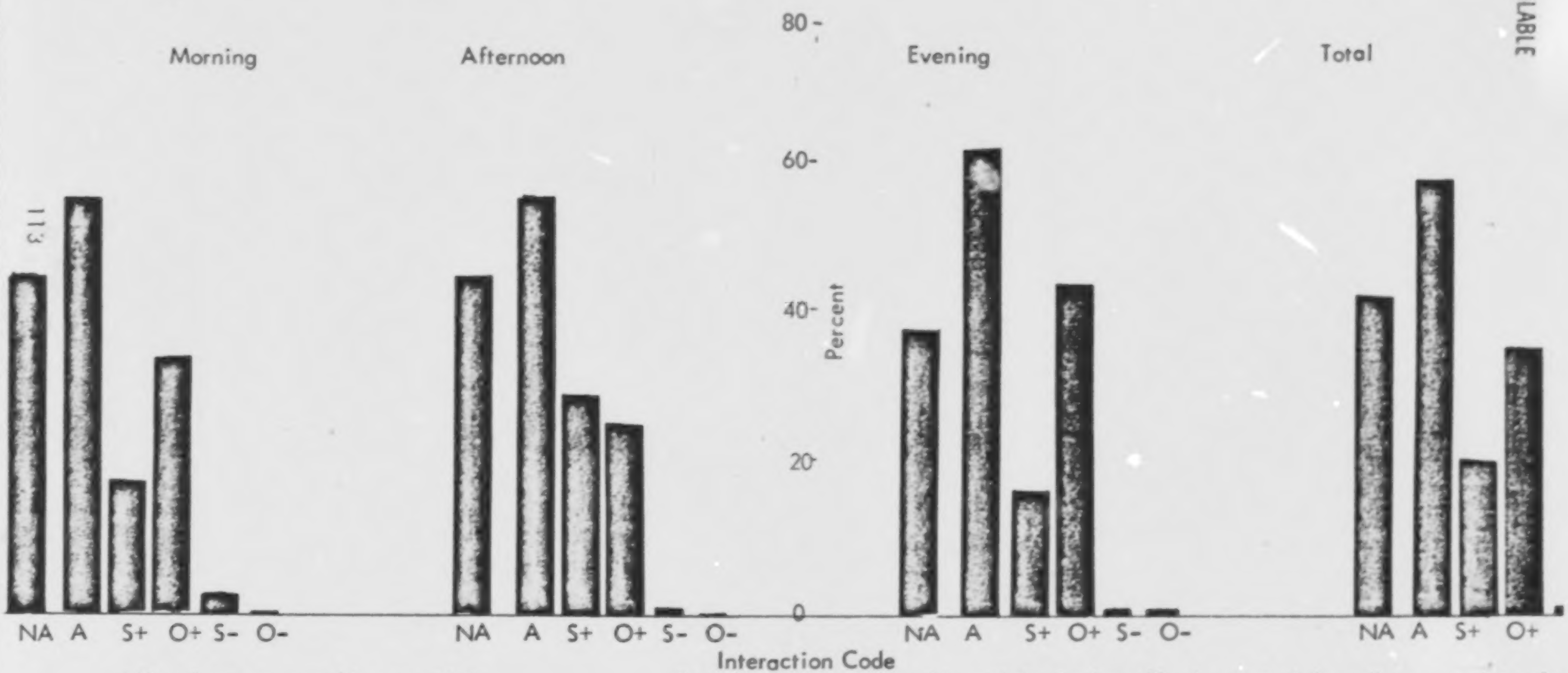
Exhibit 22

Check List for Activity Observations

Spot Check Date:______ Time:______ Subjects:.	Cleaning	Sewing-Ironing	Self care	Academic	Puzzle	Coloring,painting	Magazines	T.V.	Record player	Dancing	Games	Blocks	Cutting paper	Crafts	Cooperative conv.	No activity								Initials

Figure 31

Per Cent of Total Population Engaged in Activities During Observation Sessions



NA = S was engaged in no activity
A = S was engaged in an activity

S+ = S was engaged in this activity by herself using materials as they were intende
O+ = S was engaged in this activity with others using materials as they were intend
S- = S was engaged in this activity by herself using materials not in the way they were intended
O- = S was engaged in this activity with others using materials not in the way they were intended

The bars labeled "morning", "afternoon", and "evening" are percentages for those observation periods, and the one labeled "total" represents a grand percentage for all observation sessions.

Figure 32a

Per Cent of Total Population Engaged In Specific Activities During Observation Sessions

Morning

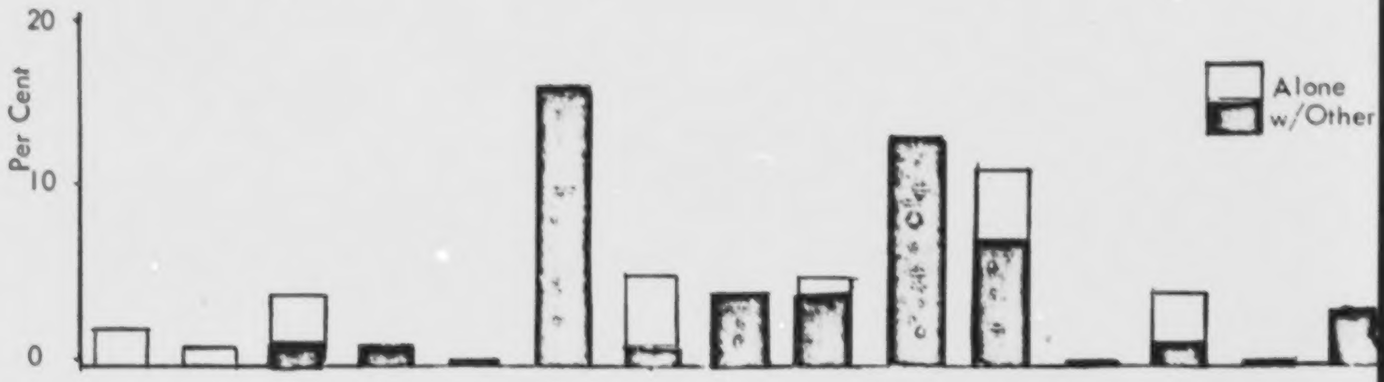


Figure 32b

Per Cent of Total Population Engaged In Specific Activities During Observation Sessions

Afternoon

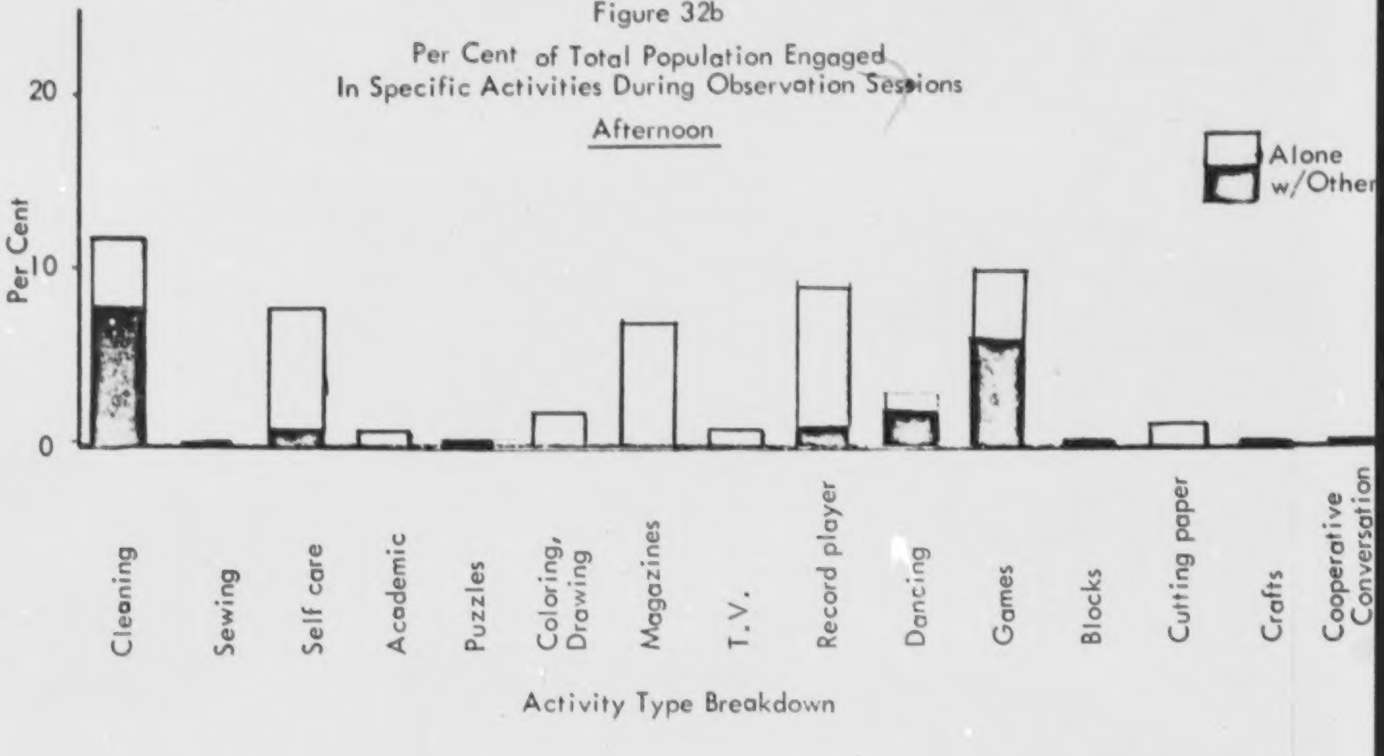


Figure 33a

Per Cent of Total Population Engaged
In Specific Activities During Observation Sessions

Evening

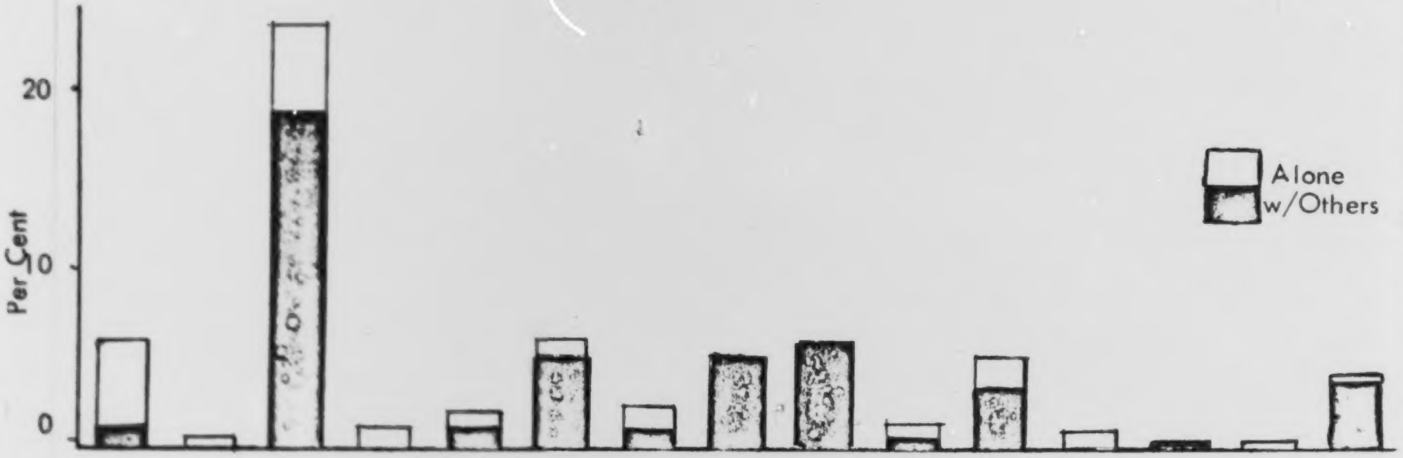
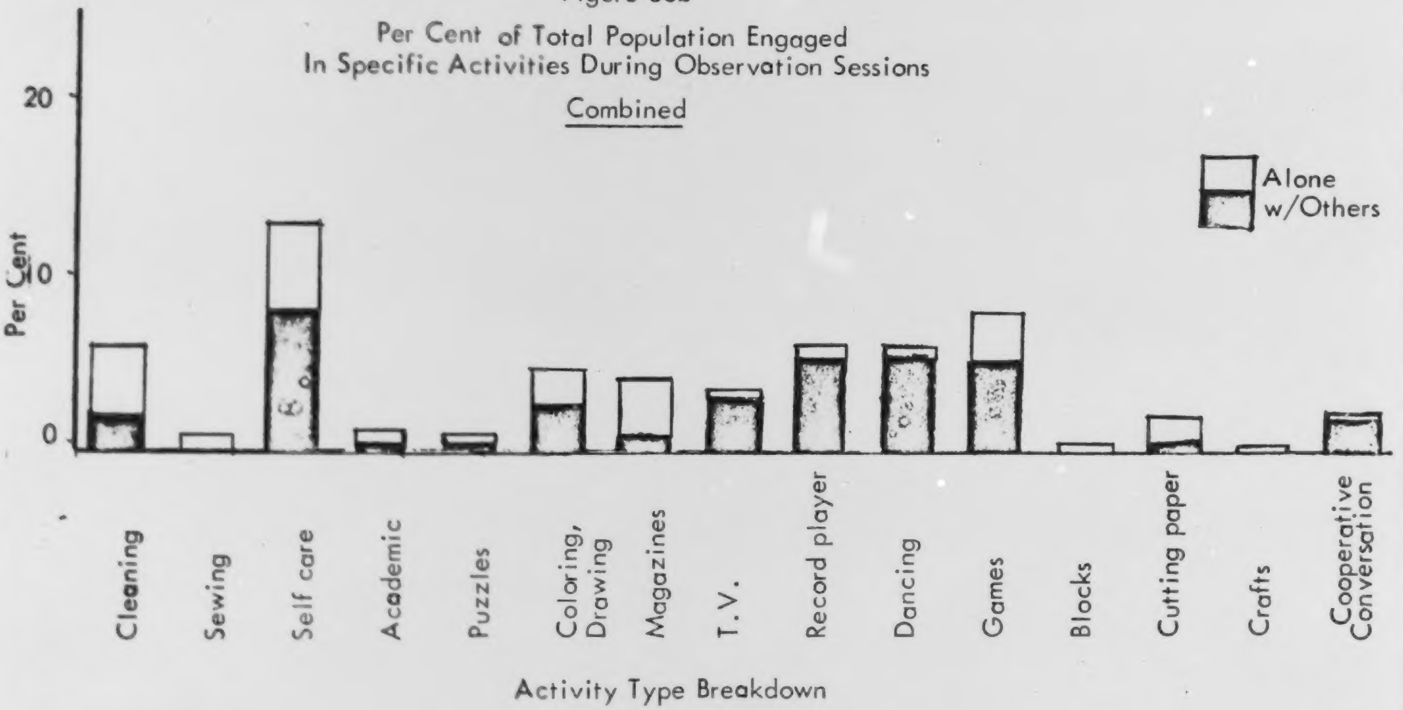


Figure 33b

Per Cent of Total Population Engaged
In Specific Activities During Observation Sessions

Combined



The caller's cards were 1½" squares of cardboard. There were four cards made for each animal; i.e., Cat 1, Cat 2, Cat 3, and Cat 4. The 1, 2, and 3 meant they could advance that many spaces toward the finish line, while the minus 1 meant they had to go back one space. four other cards were made, each bearing a different command; "All animals +1," "All Animals +2", "All Animals -2", and "All Animals Back to Start".

The caller's cards were kept in six envelopes labeled Card 1, Cat-House-Mouse-Rabbit. One envelope held the caller's cards for each game card so that if only three of the cards were used, the other caller's cards would not be needed. In the sixth envelope were the four cards for all animals. These were always used.

The object of the game was to arrive at the finish line first. Each S took the name of a different animal. As each girl moved, she made the sound of the animal. As the animals were called, the girls moved toward the finish line or back the allotted number of spaces. The caller would draw one card from the box and call out the name of the animal; e.g., "Who is the turtle?" After the S indicated she was that animal, the caller would say, "You move one, turtle," or "You have to go back two spaces, turtle." The Ss would move their marker toward the finish line, and the first animal reaching the finish line was the winner.

Variation for fewer players: Instead of using the caller's cards, use one die for every four players. The count on the die indicated:

1 = advance one space
2 = advance two spaces
3 = advance three spaces
4 = miss one turn
5 = go back one space
6 = go back to start

Horse Race: This game was designed to teach moderate to severely retarded children the four suits in a deck of playing cards, so that they could learn to play other card games.

The materials used were one sheet of 12" x 14" poster board, and a red and black magic marker.

On the posterboard were drawn three vertical lines 3 inches apart from the top to bottom. The 13 horizontal lines were drawn 3/4 inch apart, except for 3 inches left at the top and 2 inches at the bottom. In each 3 inch square at the top was drawn a horse, on which was colored in red or black magic marker a diamond, club, heart, or spade. These symbols were also colored in the 2 inches at the bottom.

The procedure was to have a deck of playing cards face down on the table. As each card was turned over, the S playing that suit had to name the suit correctly before moving. Each correct answer entitled the S to move one space forward, and each incorrect answer required the S to go back one space. The first one reaching the finish line was the winner.

Color or Number Bingo: This game was devised for moderate to severely retarded children who could not recognize numbers past 20. They could match colors, and some were able to name them. This game could also be used for pre-school and first-grade children.

The materials used were ordinary 8½" x 11" sheets of typing paper, paste, scissors, poster paints, cardboard sheets for backing, and clear plastic covering. On a ditto master a 5 3/4 inch square was drawn which was divided into sixteen 1 7/16 inch squares. Several sheets were painted with poster paints of the 15 different colors used and cut into 1 inch squares. These were pasted onto the duplicated copies in the coded arrangement as shown in Exhibit 24. (Gummed paper in assorted colors could also be used.) The code for Color Bingo is as follows:

0 Free square (use a star, smaller square and/or the word "Free" written in)

1 = Purple
2 = Yellow
3 = Blue
4 = Green
5 = Orange
6 = Red
7 = Black
8 = White
9 = Brown
10 = Light Blue
11 = Violet
12 = Pink
13 = Bright Green
14 = Gray
15 = Tan or Beige

The caller's cards were 3" x 4½" cards either displaying the 15 different colors or large numbers.

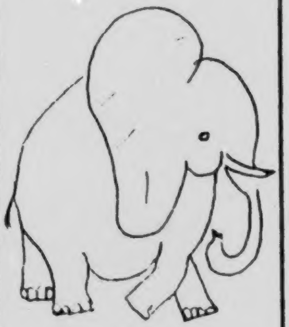
The bingo cards were numbered from 1-20 and covered with a heavy, plastic preservative.

The object of the game was to cover a row of four colors, or numbers, either horizontally, vertically, or diagonally with plastic chips or markers. Variations of winning patterns could be four corners, four in a corner, outside square, or four in the middle, as shown in Exhibit 25. Number of players ranged from 2 to 20 and the variations were an interesting change.

The procedure required the caller to draw a card, call out the color or number, and hold it up to let the Ss match it with their own card. As the caller showed the color or number, the Ss placed a marker or plastic chip on their matching color or number. The first one to get four in a row called out "Bingo." The caller then first checked the card, if it was correct, the S was the winner.

Exhibit 23

Example of Card for Animal Race Game

BIRD	GIRAFFE	SEAL	 ELEPHANT

FINISH LINE

Exhibit 24

Examples of Number Bingo Cards

Card 1

6	10	4	2
7	5	8	1
12	9	14	15
3	13	11	0

Card 2

0	7	9	12
6	1	2	3
4	5	11	13
14	10	8	15

Card 3

2	4	11	9
14	3	0	12
10	6	7	15
5	8	1	13

Card 4

8	15	14	13
1	3	12	7
0	5	2	4
9	10	11	6

Card 5

15	9	2	14
10	8	4	0
1	11	12	5
13	7	6	3

Card 6

4	12	6	3
11	9	14	15
8	13	5	7
0	1	10	2

Card 7

10	14	8	0
5	13	4	11
2	15	3	12
6	9	7	1

Card 8

7	13	1	11
0	10	3	12
5	4	9	14
2	6	15	8

Card 9

14	6	7	10
12	2	9	8
11	3	1	0
15	5	4	13

Card 10

5	2	13	1
8	6	10	9
3	12	0	7
11	15	14	4

Card 11

3	11	15	6
2	4	5	1
14	0	8	9
10	12	13	7

Card 12

9	8	3	15
13	0	6	14
7	2	10	1
5	4	12	11

Card 13

1	5	0	8
4	12	15	13
6	10	11	3
7	2	9	14

Card 14

6	8	9	7
10	11	1	4
5	14	15	2
12	3	0	13

Card 15

12	1	10	5
9	7	13	6
15	8	0	11
4	14	2	3

Card 16

12	1	4	6
9	7	11	5
15	2	13	8
3	0	14	10

Card 17

13	3	5	2
15	14	7	10
9	1	4	6
8	11	0	12

Card 18

13	11	15	14
8	9	12	6
1	7	2	0
4	10	3	5

Card 19

11	0	12	4
3	15	8	2
13	7	6	10
1	14	5	9

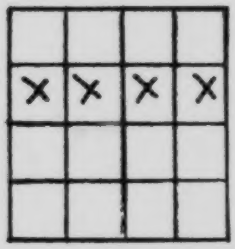
Card 20

11	7	6	5
1	14	8	2
9	0	10	4
13	15	3	12

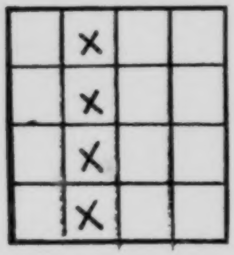
Exhibit 25

Examples of Winning Bingo Cards

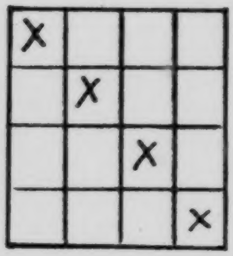
Horizontally



Vertically

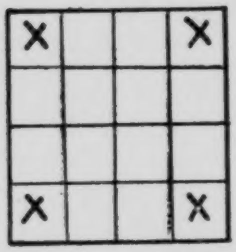


Diagonally

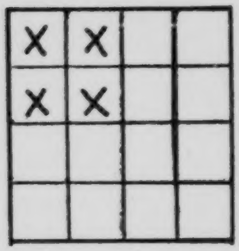


Variations

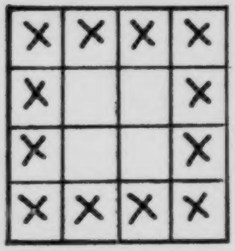
Four corners



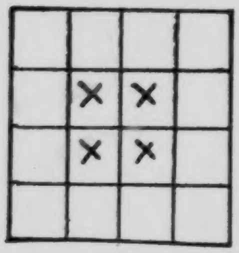
Four in a corner



Outside square



Four in the middle



Heterosexual Interaction Mimosa "C" (ages 16-21)

Abstract

Two separate programs were undertaken to deal with the problem of appropriate heterosexual interactions. The girls were involved in a sex-education course which was conducted by the nursing service of the Hospital. Along with this program, a dance project was introduced. Specific training was given in nine categories. Although the program was successful, revision is necessary before it will be appropriate for retarded teenagers.

During the first year, training in this area was not conducted in the manner outlined in the grant proposal. However, a particular circumstance forced the beginning of a training program that was more basic than originally proposed. One of the older girls on Mimosa "C" was involved in an attempt at sexual intercourse, thereby forcing attention to an area of development that had apparently been overlooked. Followed the incident two things became apparent; 1) the girl was not only totally uninformed as to the physiological and psychological facts, but also lacked a vocabulary for describing the incident, and 2) the adult staff members who dealt most closely with the incident evidenced even more alarm than the girl, and considerable ignorance. This state of affairs served to make matters even more difficult for the child. It was decided at this time to instigate a sex education course for both boys and girls from higher level groups. The Hospital agreed to provide the instruction for the course.

Along with the above program, a dancing project involving boys from other cottages was introduced to help train appropriate heterosexual interaction. The dance project was designed jointly by the research personnel and a music therapist from the Music Therapy Department. The initial step in training was to analyze and catagorize behavior associated with a dance situation (see Exhibit 26).

Two major areas of deficit showed up in initial observations. The girls exhibited poor posture when sitting or standing, and they lacked appropriate verbal behavior for initiating or terminating a dance. A specific nine-step dancing project was developed for training. These steps began when the girl was asked to dance and terminated when the music ended, with the girl saying that she enjoyed the dance. Six girls and their partners were trained in a group. Each couple was required to perform the nine-step chain before they received points. These points could be exchanged for free dance time, games and refreshments. Exhibit 27 is a sample of the data sheet which was used for evaluation. Eleven of the 12 $\underline{S}$s showed marked improvement and were judged as having acceptable dance manners.

Exhibit 26

Dance Project Evaluation Categories

Categories of Responses and Performances Criteria for Dance Project

1. Girl sat or stood correctly

Sitting--Feet on the floor in close proximity and in line with the knees, legs bent at the knees and the knees together, toes forward, back straight, head up, hands in the lap or on the arms of the chair, skirt below mid-thigh.

Standing--Feet on the floor in close proximity, toes forward, weight evenly distributed, back straight, head up, arms at the side.

2. Boy sat or stood near the girl.

3. Request to dance was made by the boy

Request for dance--Verbal request was made by the boy with the words, "May I have this dance?" while looking at the girl.

4. Reply to the request was made by the girl

Response to request--Verbal response was made by the girl with the words, "Yes, you may," or "No, thank you, not right now," while looking at the boy.

5. Movement to the dance floor

Movement to and from dance floor--The girl and boy walked as a couple. Hands could be held.

6. Position on the dance floor

Position for girl--left arm rested slightly behind the boy's right shoulder with the hand flat against the boy's back just below the neck. Right hand in boy's left hand with right elbow bent.

Position for boy--left hand in girl's right hand with left elbow bent. Right hand flat against the girl's back centered just above the small of the girl's back.

7. Thirty seconds of dance.

8. Movement from dance floor.

9. Terminal conversation

Boy's conversation--"Thank you for the dance," while looking at the girl.

Girl's conversation--"You're welcome, I enjoyed it," while looking at the boy.

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Exhibit 27

Dance Project Evaluation Data Sheet

Check Sheet

Standing	Sitting	Request for dance	Response to request	Movement to/from d. floor	Position on dance floor	Terminal Conversation	Girl
							1.
							2.
							3.
							4.
							5.

							Boy
							1.
							2.
							3.
							4.
							5.

Experience with this program taught the Mimosa staff something about the selection of target behaviors. All the girls in the first two classes attained criteria behavior, and we were pleased that the program was serving its purpose. However, in reviewing a movie of a training session, it was suddenly discovered that the dancing did not look like the dances of teen-agers. The children's manners and movements were more similar to those of middle-aged persons. Revision is needed before this program will be appropriate for teen-agers.

Heterosexual Interactions Mimosa "A" and "B" (ages 6-16)

Abstract

On Mimosa "A" and "B" a naturalistic program of heterosexual interaction was initiated. Boys of the same age and ability level participated in all aspects of daily cottage activity. The girls quickly adapted to the presence of the boys and vice-versa. Although such a program does not seem unusual, it is seldom done in institutions for the retarded.

The typical institutional arrangement allows for only minimal interaction between girls and boys. These incidents usually occur in very structured settings, such as therapy class or work placement. With these conditions in mind, it is easy to understand why the Mimosa girls were inadequate in relating to boys.

Learning how to interact with the opposite sex should come early in the training of appropriate heterosexual interactions. The techniques used in this program were nonsystematic. Arrangements were made for several boys to spend part of their day on the Mimosa cottage. The subjects were selected from a group of boys who were the same age and level as the Mimosa girls. The boys were engaged in all of the cottage activities such as work program, reinforcement system, leisure-time activities, etc. The girls soon learned to play and work with the boys in a natural and casual manner.

Eating Etiquette

Abstract

An eating etiquette training program was written by analyzing the task. Instructions were given in correct use of utensils, posture, foot placement, subjects of conversation, and ways to request food. Training took place in the cottage dining room where family-style meals could be served. Immediate feedback could be given to the girls as they made responses. The data indicated that the girls acquired most of the necessary eating etiquette skills.

Most of the Mimosa "C" girls displayed very poor mealtime behaviors in relation to community standards. Casual techniques primarily dependent upon imitation and feedback were not adequate for correcting their deficiencies.

During 1968-1969 it became necessary to write a training program. Research of written materials and a task-analysis of mealtime habits formed the basis of the program and the criteria by which responses would be judged. When the program was written, a check list was developed for gathering data on subject responses and training was begun (see Appendix C for detailed program).

Training sessions took place on the cottage so that three or four girls could be served a family-style meal. The instructor ate with the girls so that immediate and continued feedback on performance could be given. At the end of each meal, girls were given privilege points for good behavior noted during the meal. Instruction and practice was given in such areas as correct use of utensils, posture, foot placement, subjects of conversation, and how to request food or condiments. To develop discrimination and generalization ability, subjects were encouraged to observe and comment on their own as well as other girls' behavior at mealtime. When posttest results and the instructor's judgment indicated that a girl was sufficiently skilled, she was removed from the training group and replaced by another subject. Graduating students were taken to eat at a downtown restaurant both as a test and as a reward. Students remained in the program for lengths of time ranging from two to three months, or 40 to 60 evening meals.

The results from the pre- and posttests indicated that the girls had acquired most of the necessary program skills (see Table 10).

Table 10

Eating Etiquette
Pre- and Posttest--Mimosa "C"

	Per Cent Correct	
	Pretest	Posttest
S 1	55%	95%
S 2	44%	88%
S 3	60%	93%
S 4	43%	90%
S 5	29%	82%
S 6	35%	88%
S 7	50%	81%
S 8	44%	88%

Four of the older girls from Mimosa "B" were also given training in eating etiquette. Table 11 contains the pre- and posttest data for these subjects.

Table 11

Eating Etiquette
Pre- and Posttest--Mimosa "B"

	Per Cent Correct	
	Pretest	Posttest
S 1	2%	99%
S 2	1%	98%
S 3	1%	98%
S 4	1%	96%

Management of Group Social Behaviors

In the development of the Mimosa program, most of the attempts to modify social behavior involved individual programs. However, it was important to develop systems for managing group social behaviors. The general procedures included developing systems for reinforcing appropriate behaviors and punishing inappropriate social behavior. The procedures described below attempted to decrease the frequency of negative or deviant social incidents. A detailed explanation of the beginning reinforcement system can be found in the Program Development section.

Modification of Socially Deviant Behaviors Mimosa "B" (ages 12 - 16)

Abstract

The existing program for dealing with socially deviant behaviors was unsatisfactory. Specific procedures were developed to systematically deal with two major categories of socially deviant behavior; defiance of authority and physical aggression. These procedures introduced: 1) time-out; 2) good-girl chart; 3) missing a meal; and 4) nickels given to good girls. These techniques were effective in decreasing negative behaviors and increasing acceptable behaviors. Modification of the techniques were made during the last year of the project to reflect needed changes.

In January 1967, the modification of socially deviant behaviors was discussed by the Mimosa staff. The existing procedure consisted of removing the child from the Mimosa building into an isolation room located in another building. Providing immediate withdrawal from the cottage area was the primary problem. The consequence of the inappropriate behavior was delayed, and, in addition, the aide was forced to leave the building. The staff believed that the procedure lacked immediacy and consistency in application, and that only extreme disobedience and aggression should result in withdrawal. If the isolation room was located nearer, the effect of a more immediate and consistent consequence of withdrawal could be ascertained.

There were two major classes of socially deviant behavior which resulted in isolation:

1. Defiance of authority--This included such behavior as disobedience to requests or orders from staff and not being at an assigned place on time, e.g., a therapy area.
2. Physical aggression--This was defined as physically striking another child with an object or with any part of the body.

On March 1, 1967, the use of an isolation room called the Time-Out Room (TOR) was initiated, and was located in the Mimosa building. The data reported in Table 12 was collected daily until December 13, 1967 (346 days). These data indicate the frequency of times that a girl was placed in the TOR by an aide for disobedient or physically aggressive behavior. In addition, a sequence of four reinforcement manipulations accompanied the use of the TOR during this period. Each reinforcement manipulation was initiated in an attempt to decrease the frequency of problem social behaviors. The frequency was converted to rate of isolation incidents per day.

The design consisted of the following procedures and results (the above procedures constituted Phase I).

Phase II: The TOR--The staff was instructed to be consistent and systematic in their application of reinforcement. If a subject was disobedient or physically aggressive, she was to be placed immediately in the TOR for 10 to 15 minutes. This procedure was followed for 19 days, from March 1 to 19.

Observation and a subsequent analysis of the data revealed the frequency of time-out incidents during this period, as compared with the previous period, had decreased. Behavioral incidents recorded during the months of January and February (Phase I) revealed that four Ss were being taken outside the building following problem behaviors. The remaining 24 Ss showed a relatively low rate of behaviors which required isolation as a consequence. Since the four Ss were considered to be individual problems, they were labeled High Rate Group (HRG), while the other Ss were named the Low Rate Group (LRG).

Table 12 contains raw data indicating the frequency of isolation incidents occurring for the HRG and LRG during each of six phases, and the total number of days constituting each phase. Rate was computed by dividing the number of incidents by the number of total days.

Table 12

Rate of Isolation Incidents Per Day
(Mimosa "B") 1966-1968

	Phase	Frequency of Isolation Incidents		Total Days	Rate of Isolation Incidents Per Day	
		HRG	LRG		HTO	LTO
I.	Isolation off cottage	8	1	58	.14 (14/100 days)	.02 (2/100 days)
II.	TOR on cottage	31	8	19	1.6 (1.6/day)	.42 (4/10 days)
III.	TOR, Good-girl chart	92	48	79	1.2 (1.2/day)	.6 (6/10 days)
IV.	TOR, Good-girl, Miss-meal	46	42	153	.3 (3/10 days)	.2 (2/10 days)
V.	Procedures II, III, IV + 5¢	2	2	16	.1 (1/10 days)	.1 (1/10 days)
VI.	Same, minus Miss-meal	6	2	21	.3 (3/10 days)	.09 (9/100 days)

The use of the TOR increased rate of isolation incidents per day. The rate for the HRG increased from four incidents per 100 days during Phase I (isolation off cottage) to 1.6 incidents per day in Phase II (TOR on cottage). The LRG increased from a rate of two incidents per 100 days to 42 per 100 days or about four per ten days during the same period of time.

Phase III: Good-girl chart--This procedure was used to emphasize the positive consequences of socially appropriate behavior. At the end of each day a colored star was placed on a chart in a square beside each Ss name, provided no reports of negative behavior were received for that day. Three consecutive stars led to a special treat on the cottage. Seven consecutive stars led to a gold star and a special treat off the cottage. If negative behavior (isolation incident) were reported, a black mark was put on the chart in place of the star. The good-girl procedure was used in addition to the TOR procedure and lasted for the period of 79 days dating from March 21 to June 7. The HRG decreased from 1.6 incidents per day in Phase II to 1.2 incidents per day during Phase III. The LRG increased from about four incidents per 10 days to six incidents per 10 days.

Phase IV: Time-out, Good-girl chart, and Miss-Meal--This procedure introduced an additional consequence for negative behavior. The next scheduled meal was missed if a girl exhibited deviant behavior. The rate of incidents decreased for both groups during this period of 153 days. The HRG decelerated to a rate of three incidents per 10 days, and the LRG decreased to one incident per 10 days. Figure 34 depicts the rate change of incidents per day during all reinforcement manipulations.

This procedure seemed to have the greatest decelerating effect on the rate of isolation incidents. At this time, the social behavior of two of the girls in the HRG had improved to the extent that they were moved to Mimosa "C", which left two girls in this group. However, a new girl on Mimosa "B" exhibited negative behaviors so frequently that she was placed in the HRG.

Phase V: Time-out, Good-girl chart, Miss-meal, and Nickels-for-good-girls--The addition of real money was made to further increase the properties of positive reinforcement. Subjects were given a nickel for each star received for appropriate behavior at the end of a day. A gold star plus 20 cents was presented to Ss who behaved appropriately for seven consecutive days.

Figure 34 indicates that the rate of isolation incidents continued to decrease for both groups (one isolation incident per 10 days for the HRG and one per 10 days for the LRG).

Phase VI: Time-out, Good-girl chart, Uninteresting-meal, Nickels-for-good-girls, and Minus-miss-meal--The final reinforcement manipulation occurred 16 days after the onset of Phase V. While the addition of real money resulted in further deceleration of negative behavior, an ethical question arose regarding withholding meals from institutionalized girls. The staff decided that negative behavior would result in an uninteresting meal rather than a complete withholding of the next meal. It was decided to withhold dessert from the next meal, and any other modification which the staff considered would constitute an uninteresting meal.

Data on this procedure were collected for 21 days. The HRG increased to three incidents per 10 days, and the LRG decreased to a rate of nine incidents per 100 days.

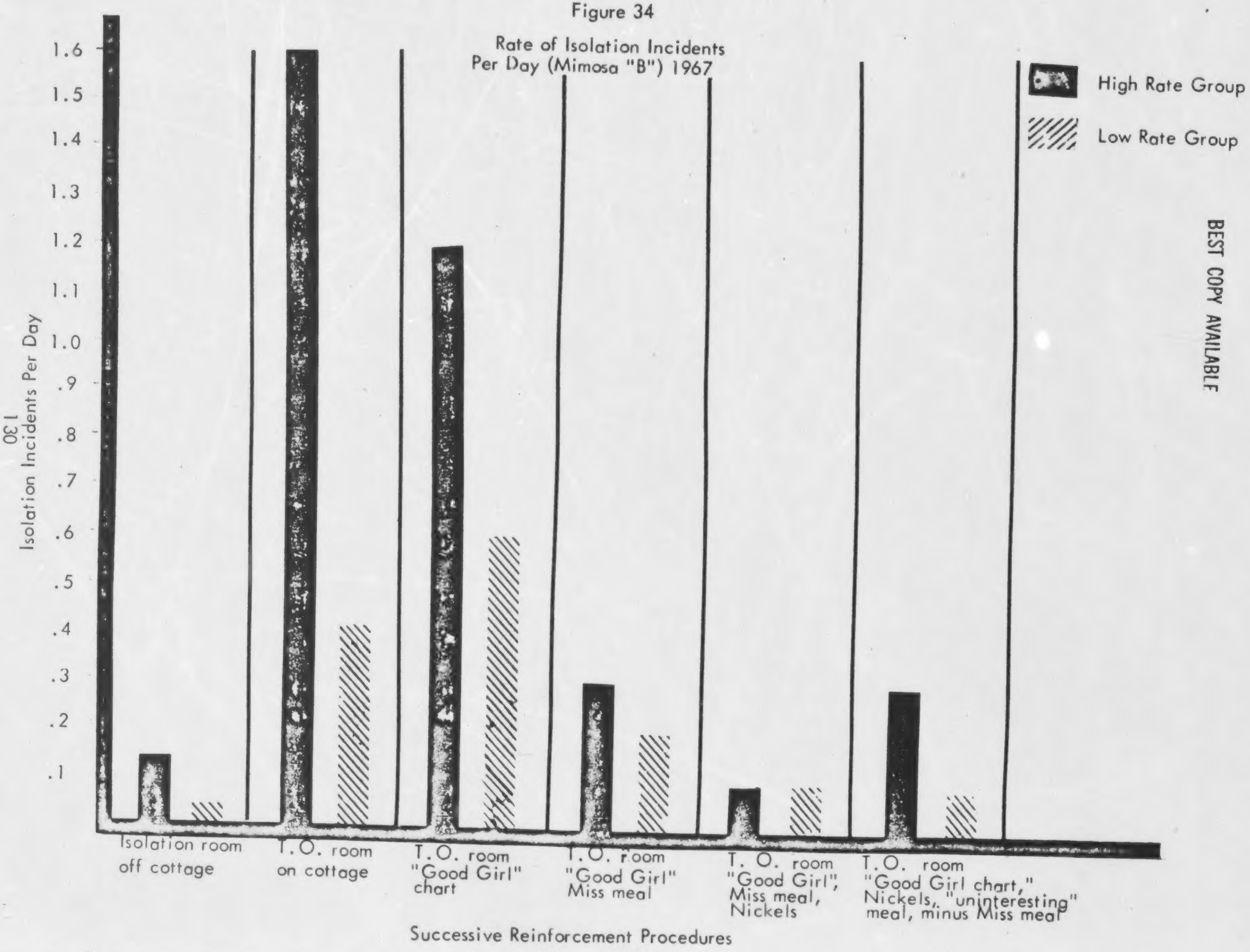
Results: 1. In the final analysis, the use of the TOR proved a more immediate and controlled method of dealing with disobedient and physically aggressive behavior.

2. While the specific effects of the reinforcement manipulations are difficult to ascertain, the greatest deceleration in rate of isolation incidents occurred during Phase IV, when the consequence of negative behavior resulted in missing the next meal.

3. The total rate of isolation incidents per day in the TOR on the cottage decreased from two per day during Phase II, to 19 per 100

Figure 34

Rate of Isolation Incidents Per Day (Mimosa "B") 1967



days in Phase VI. These procedures were satisfactory in maintaining socially appropriate behavior for the group, with respect to obedience to directives and fewer physically aggressive behaviors toward peers.

4. The concurrent use of tangible consequences such as the Good-girl chart and Nickels for socially appropriate behavior, and the use of an isolation room, the withholding of a meal (or providing an Uninteresting-meal), and the presenting of a Black-mark as a consequence for socially deviant behaviors resulted in a decelerated rate of negative behaviors requiring isolation as a consequence.

The program during 1968 kept the same concurrent schedule, but was more specific in defining the behaviors which resulted in isolation. In addition, an avoidance procedure was used. A 2' x 2' square taped on the floor was a place that a deviant girl could stand for 15 minutes, and thus avoid complete isolation in the TOR.

A specific procedure was written and placed on the wall of the aide station. Consequences of positive behaviors remained the same, except that attention of the staff was directed toward developing positive attitude and skills needed for successful work behavior in the girls. Data were collected for a 10-month period (Feb. - Nov.), and has been summarized in Figure 35. The frequency of deviant and non-deviant behavior was classified into four categories, and the numbers represent mean number of each category per day. A comparison of the first and last four weeks indicated an increase in the number of good girls, and a decrease in the number of times that the square and/or TOR were used as a consequence for deviant behavior (see Figure 35). There was a total of 501 deviant incidents during the 10-month period. The incidents decelerated at a rate of four incidents per day during the first six-week period and maintained at an average of one incident per two days for 37 weeks with two or three girls accounting for most of the incidents. This can be seen more clearly by referring to Figure 36, which contains the total time-out incidents for all girls during 1968.

The staff used the square and TOR throughout the year as an immediate consequence for a girl who did not obey a directive within three seconds. A breakdown of the six domains of disobedient behavior revealed that 44 per cent of the 501 incidents were classed as Not-moving-physically (within three seconds)-to-perform-a-task-upon-directions. The mean daily rate of these incidents decreased from 2.2 incidents per day during the first four weeks to .6 (6 per 10 days) during the last four weeks.

Refusal-to-lower-loud-voice occurred 21 per cent of the time. The daily rate was one incident per day during the first four weeks; during the last four weeks, it had decreased to a rate of .01 (1 per 100 days). The other four classes occurred less frequently (verbal refusal, swearing, and excuses 15 per cent; refusal to stop destructive behavior

Figure 35

Frequency of Deviant and Non-Deviant Behavior
During the First Four and Last Four Weeks

(Mimosa "B") 1968

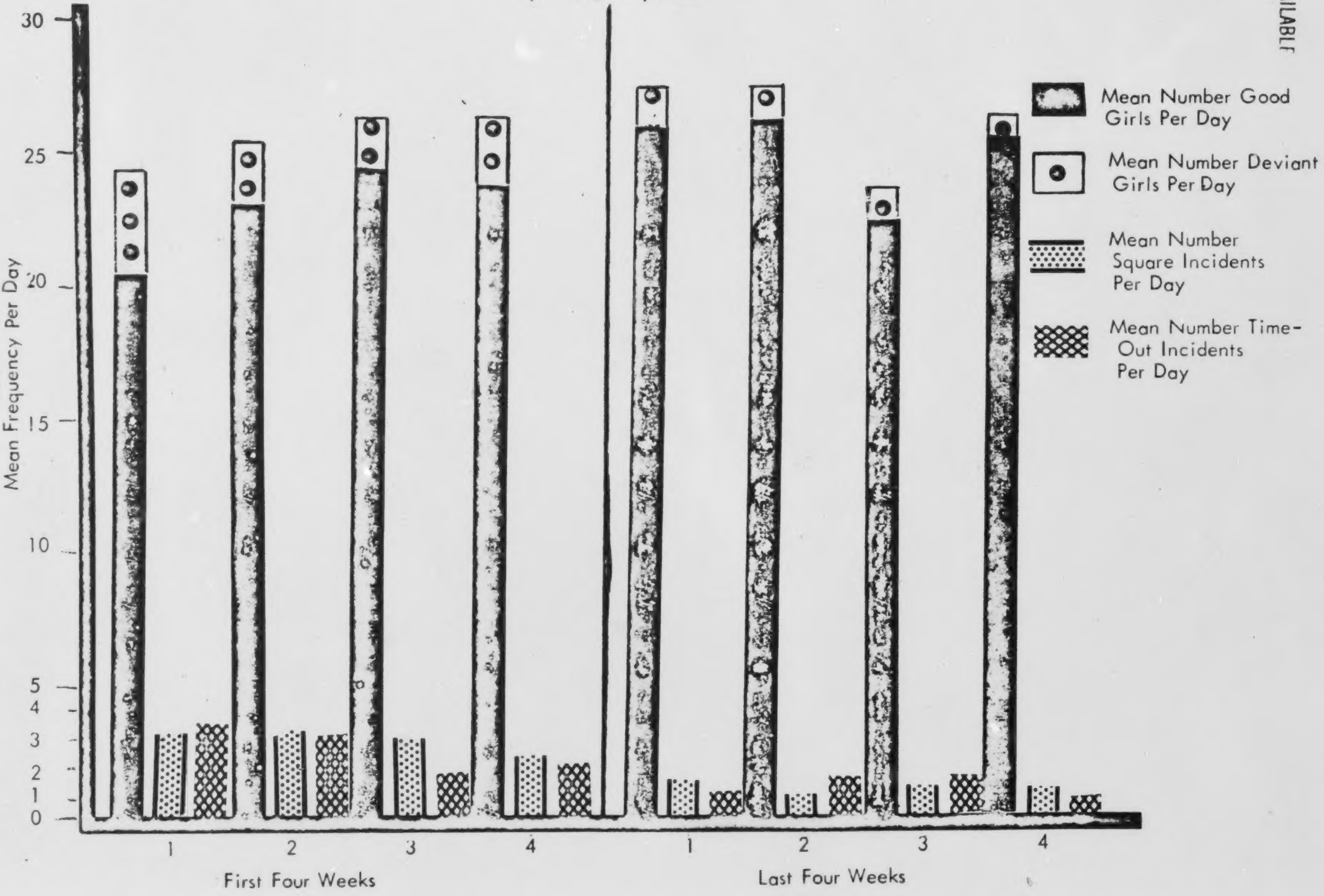
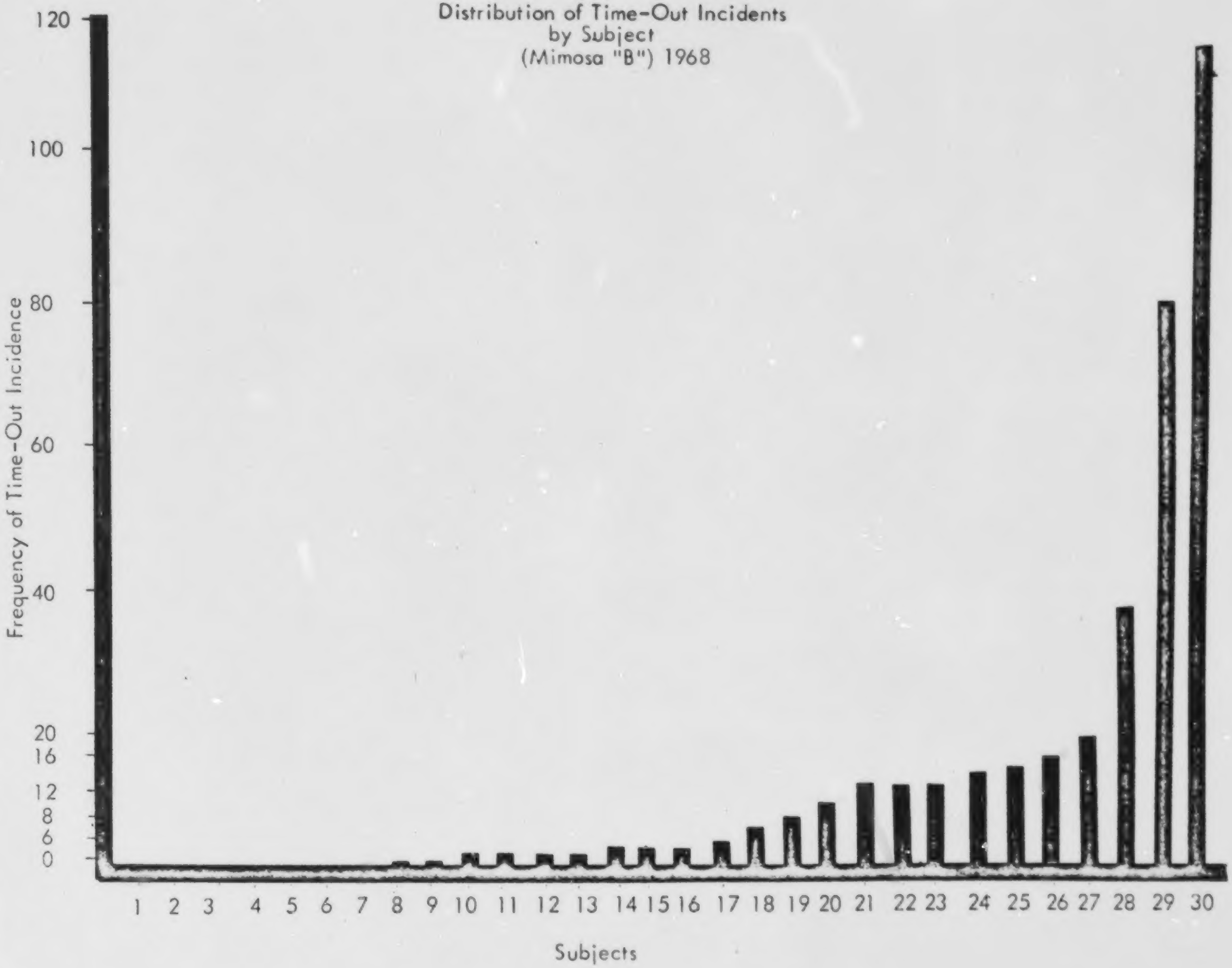


Figure 36

Distribution of Time-Out Incidents
by Subject
(Mimosa "B") 1968



11 per cent; refusal to stop unpleasant facial expressions 4.5 per cent; and refusal to return stolen items 3 per cent).

Related to the decrease in deviant behavior, and use of the square and TOR was an increase in number of girls who received nickels for desired behavior. In addition, in September 1968, emphasis was placed on positive reinforcement for obedience and/or initiative in carrying out directives. The specific behaviors were performing errands and transporting smaller children from one area to another on the Hospital grounds.

An Achievement and Big-Event chart was placed on a wall of the cottage. Each S could earn points for the Big-Event by errands and/or transportation tasks. Each errand was worth 15 tokens and each transportation task was worth 45 tokens. At the end of a three- to four-week period, Ss who had earned 500 tokens were eligible for a Big-Event.

Changes in the token system is a critical factor in its success. Periodically, the economy gets out of balance. This occurs most often because specific activities often lose their reinforcing quality. Constant monitoring of the tokens earned, spent and saved insures the continual success of this system.

A stated objective of the final year of this project was to phase out research support, shifting program maintenance to the Hospital personnel. This necessitated a reduction in the amount of money (originally five cents per day) given to girls who had not been in time-out.

To balance the system, it was necessary to reduce the price of activities. Other changes were also made in the number of tokens earned, spent, and saved. The present token and money system is given in Table 13.

Increasing Target Social Behaviors by Differential Reinforcement Mimosa "C" (ages 16-21)

Abstract

These individual programs were undertaken to increase specific target behaviors. There was a shift of emphasis in the reinforcement system from personal skills to social skills. The second program (Pay-as-you-go) selected girls who were candidates for community transition or who exhibited specific inappropriate social behavior and placed them on a budgeting system. The final program (Semiprivate room) provided for practical experience in sharing and cooperating with a roommate.

Table 13

Ways to Earn Tokens and Pennies and Ways to
Spend Tokens and Pennies
(Mimosa "B") 1970

Ways to Earn Tokens		Ways to Spend Tokens	
Off-Cottage Work	15	Television (per 30 minutes)	10
On-Cottage Work	10	Record Player (per 30 minutes)	10
Transporting Errand	10	Games	5
Regular Errand	5	Paper and Pencil	5
Writing	5	Coloring Books and Paint	5
Showers	5	Letters	5
Ironing	5	Big Events	250
Trash and Floor	5	Sitting	20
Following a Directive	3	Outside	5
Playing or Working Cooperatively	3		

Ways to Earn Money		Ways to Spend Money	
Good girl (daily)	3¢	Trips to Canteen	5¢
For 7 Consecutive days	5¢	Movies	4¢
		Hair Set	3¢
		Big Events	25¢

Shift of Emphasis in Reinforcement Program: During the first year of operation on Mimosa "C", the comparison of pretest data to follow-up data revealed that the girls had not improved in the area of social behavior, at least in ways the check list measured. Since they had made improvement in most other ways, i.e., the personal skill categories, the program emphasis was shifted and more reinforcement was given for appropriate social behavior. The spaces allotted to social behaviors on the reinforcement cards were more than tripled (see Figure 37). The staff was given additional training to develop their sensitivities to changes in social behavior, and were instructed to give more points for desired social behaviors. When compared to the previous year, the follow-up data indicated that desired changes had taken place in the social behavior categories concomitant with the shift in program emphasis (see Figure 38). A related, but independent, measure of social behavior was obtained by examining the number of time-out incidents occurring before and after the change in the reinforcement system. In the six months previous to the shift in the point system, 44 girls engaged in enough deviant behavior to warrant isolation from the group (TOR).

Using the two basic approaches (positive reinforcement of desired behaviors and negative consequences resulting in loss of points or being sent to the TOR) for managing social behavior of Mimosa "C" residents. the following points were given between January 1, 1968, and December 21, 1968. An average of 447 points were given each girl per week for engaging in desirable activity. The average points (per week, per girl) were distributed among the various point card categories in the following manner:

Constructive social activity	81 points
Personal appearance	123 points
Sewing	35 points
Ironing	61 points
Clothing care	5 points
Letter writing	4 points
Academic	45 points
Miscellaneous	93 points

An average of 32 points per week, per girl was taken away for undesirable behaviors. There was an average of 1.88 time-out incidents per week for the group of 27 girls. Seven of the girls accounted for 82 per cent of the total time-out incidents.

Figure 37

Comparisons of Mean Number of Points Given
Under Old and New Point Card Systems

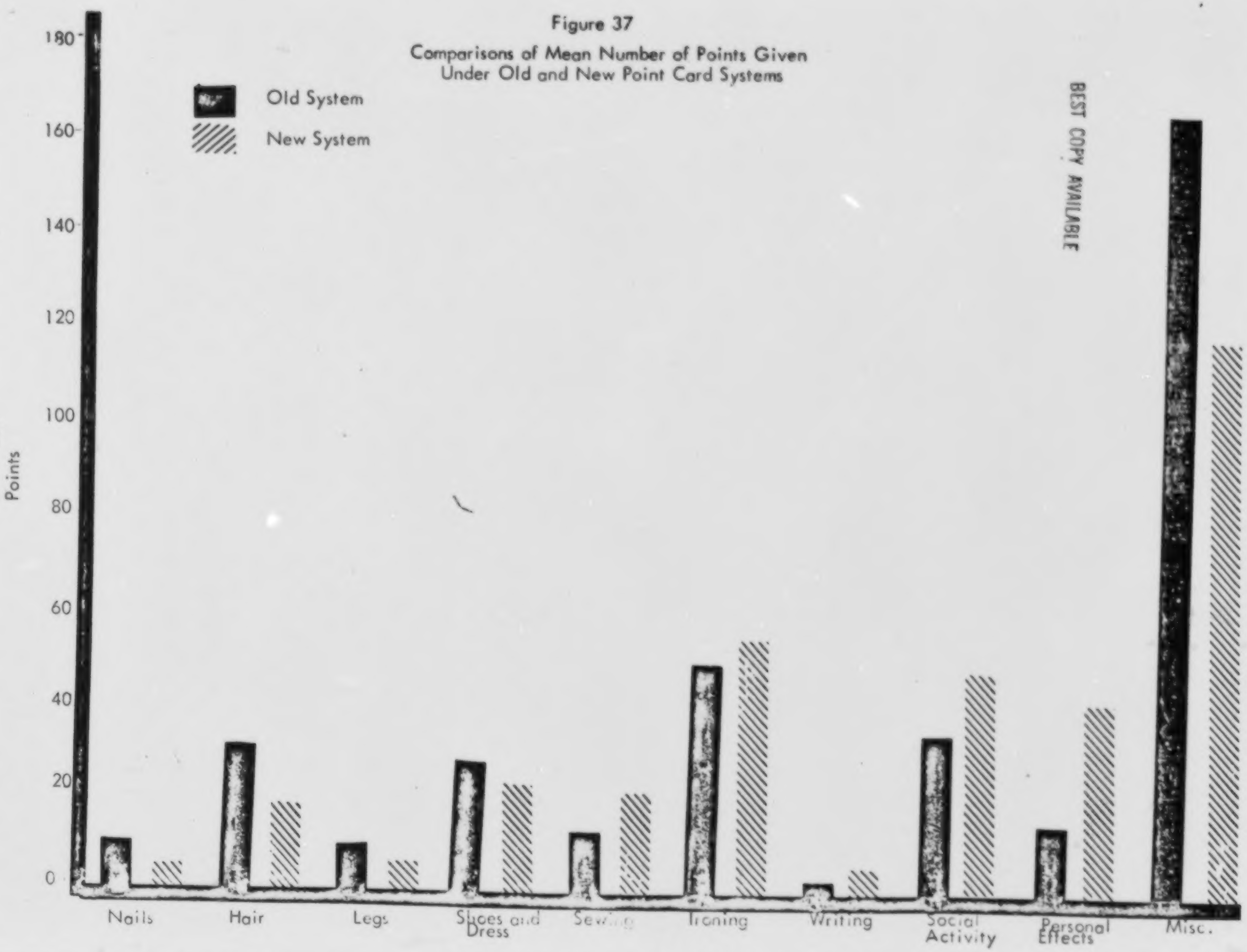
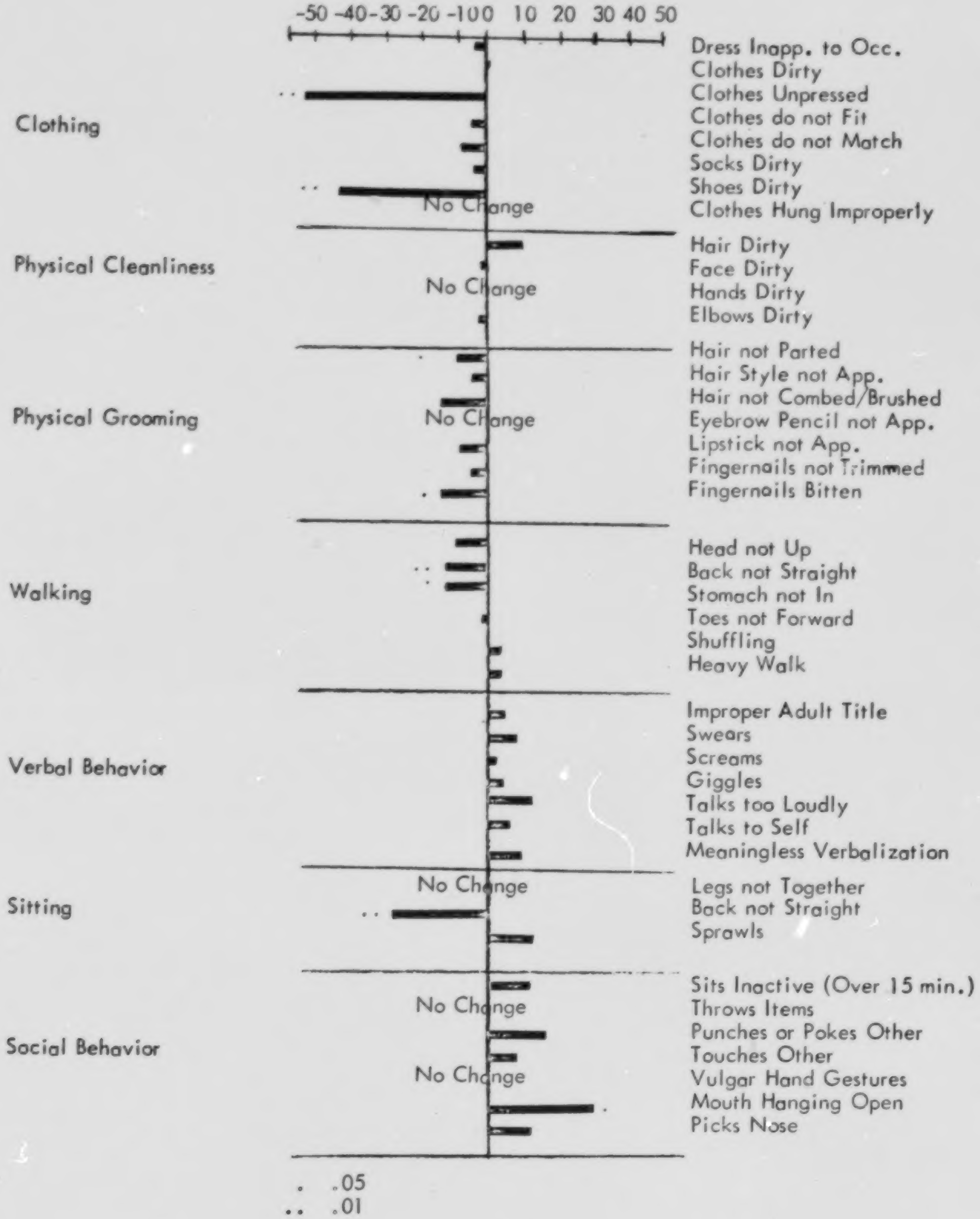


Figure 38

Per Cent Change–Total Group
Total Year (Nov. '66–Dec. '67)



Pay-As-You-Go-System: Selected girls who earned small amounts of money by working on the grounds and in the community were required to pay for the basic necessities of life, and to budget for other required and nonrequired materials and services. Misbehavior and/or bad planning could result in loss of materials and services. Good social and work behavior, and wise budgeting could result in the girl living a more privileged existence than other girls. Such experience was regarded as critical for community transition, although it is seldom provided to institutionalized subjects.

Most of the girls placed in this system were regarded as candidates for community transition sometime in the near future. Other girls were placed in the system because of inadequate social and work performance. The inadequacies took the form of working too slowly, lack of thoroughness, not taking initiative, and various forms of defiance of authority. The contingencies of the system were regarded as being more effective and naturalistic as compared to the conventional consequences such as being restricted to the cottage or being sent to an isolation room.

A total of 31 girls were included in the Pay-as-you-go system for varying lengths of time. Twelve of these girls are still involved in this system and eight girls were sent to community placements. Some of the girls returned to the general cottage point system, and some were put on the more stringent work management program (see Occupational Training section). In general, girls received more reports of good work behavior from their employers after being placed on this system. Also, the number of girls who could not afford a soft bed and dessert with their meals decreased with time, indicating that experience with this system had a positive effect on planning and behavior.

Semiprivate Room: Two semiprivate rooms were built on Mimosa "C" for girls who were ready to assume the responsibility and privilege of living in such conditions. Most of the girls placed in these rooms were regarded as candidates for community transition in the near future. Emphasis was placed on sharing and cooperating with a roommate. Also, these girls were required to pay portions of their income to live in these rooms, thus giving practical experience in budgeting.

Systems of Managing Group Behaviors Mimosa "A"(ages 6 - 12)

Abstract

A detailed description on the reinforcement system used on Mimosa "A" can be found in the Program Development section of this report. The following narrative discusses the data accumulated.

A full description of the reinforcement system used on Mimosa "A" can be found in the Program Developement section of this report. The system reported there is still in operation. The following discussion reports the data accumulated.

The findings, based on a comparison of data collected, indicated: 1) negative behavioral incidents resulting in use of the corner and TOR decreased over time (January - February 1968, mdn. = 2 incidents per day; November mdn. = 7 incidents per 100 days); 2) the number of girls having white tokens to spend in the store increased (9 per day to 13 per day); 3) the number of white tokens spent increased (March mdn. = 12 tokens per store session to November mdn. = 32 tokens per store session); and 4) the proportion of tokens spent in the areas increased in music and free play, decreased in outside play, and decreased in playhouse.

The record player and table games functioned as the most preferred activities and probably were the most powerful type of backup reinforcers for these young girls (see Tables 14 and 15). Since (a) white token rate increased (see Figure 39), (b) deviant incidents decreased (see Figure 40), and (c) preferred activities increased, it is surmised that positive responses to adult directives increased and negative responses decreased. Also, participation in activities which provide conditions for development of social skills did maintain or increase.

During 1969-1970 the following tokens were spent in the four activity areas (see Table 15).

Table 14

Proportion of Tokens Spent in Four Activity Areas
(Mimosa "A") 1968

	Playhouse	Record Player	Table Games	Outside
March	0.24	0.25	0.32	0.19
November	0.05	0.40	0.39	0.15

Table 15

Proportion of Tokens Spent in Four Activity Areas
(Mimosa "A") 1969-1970

	Playhouse	Record Player	Table Games	Outside
July 1969	.21	.27	.35	.17
Aug. 1969	.24	.31	.25	.20
Sep. 1969	.27	.28	.31	.14
Oct. 1969	.20	.38	.35	.07
Nov. 1969	.25	.30	.36	.09
Dec. 1969	.29	.44	.29	.08
Jan. 1970	.30	.30	.34	.06
Feb. 1970	.21	.40	.34	.05
Mar. 1970	.31	.26	.35	.08
Apr. 1970	.23	.36	.22	.19
May 1970	.25	.23	.34	.18
June 1970	.24	.27	.28	.21

Figure 39

White Tokens Spent in Cottage Store
(Mimosa "A") 1968

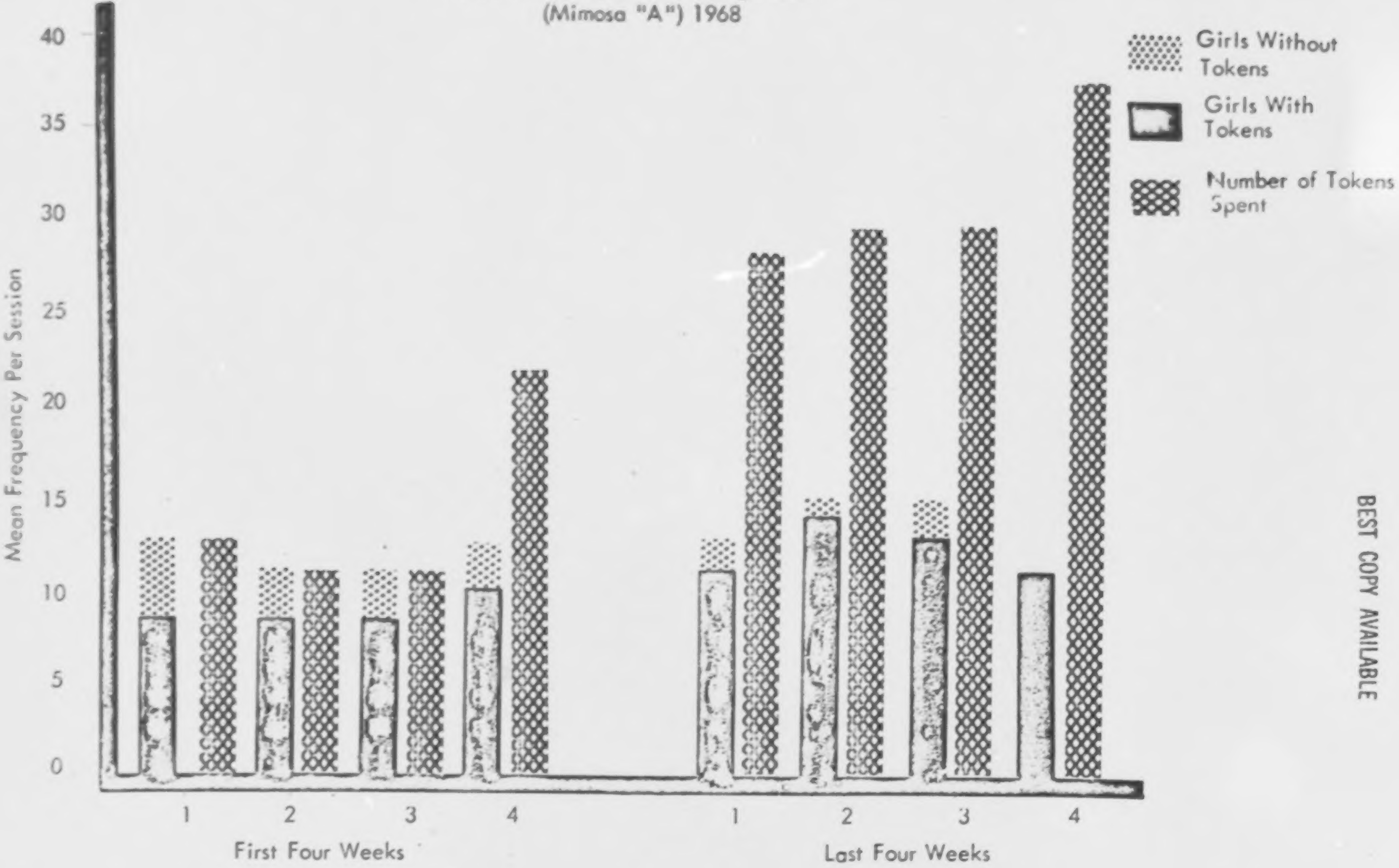
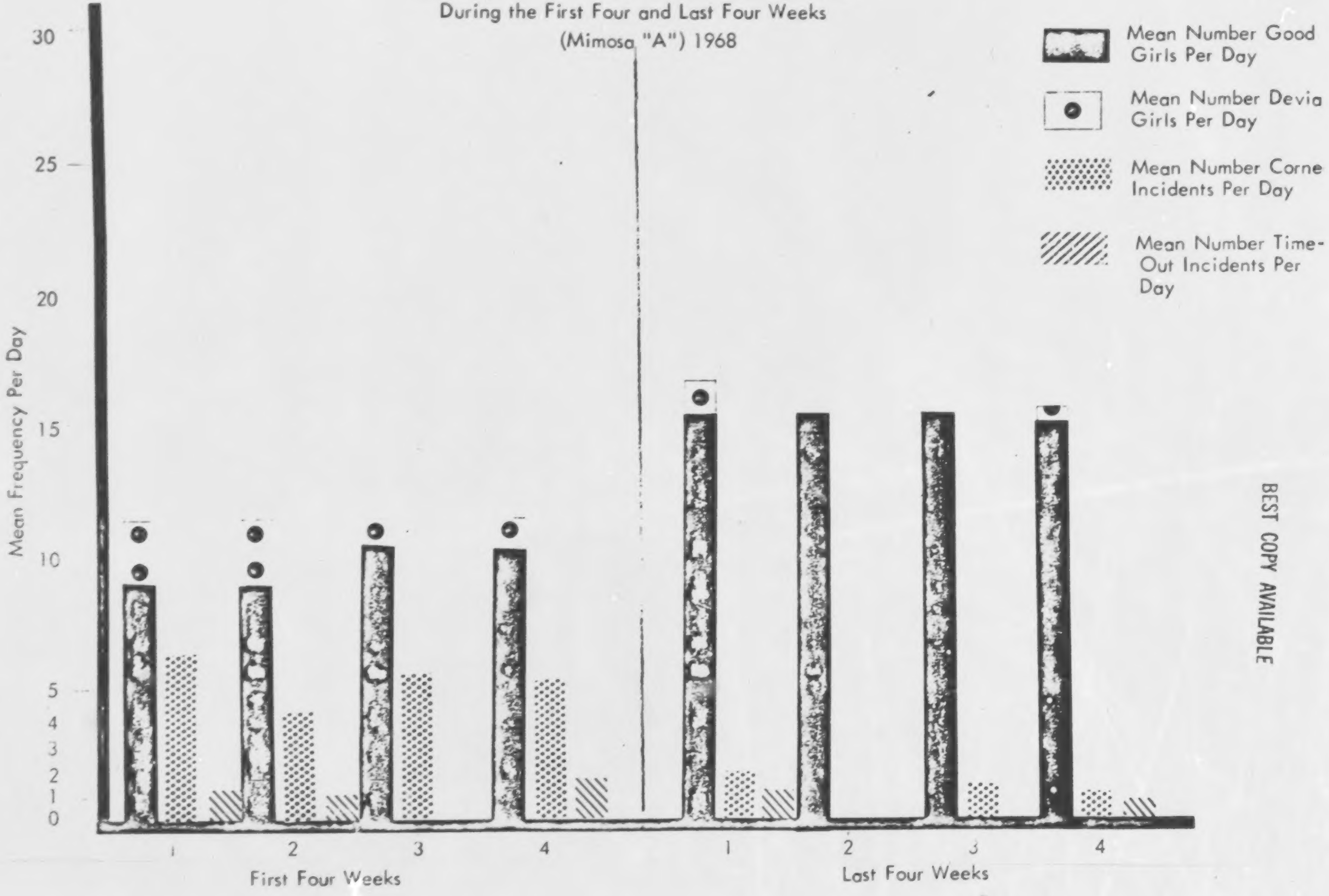


Figure 40

Frequency of Deviant and Non-Deviant Behavior
During the First Four and Last Four Weeks
(Mimosa "A") 1968



2

Signal System

Abstract

The signal system was an auditory signal designed to remind adults to reinforce children for personal and social skills. This signal was emitted by a mechanical apparatus on a variable schedule throughout the day. Reinforcement was given in the form of praise and points or tokens.

Various training programs were designed and carried out to teach the Mimosa girls how to adequately care for their personal appearance and how to behave appropriately socially. The project staff was also interested in finding an effective and efficient way of maintaining these behaviors once they were established. In December 1969, an electronic device was installed on Mimosa cottage. This system was designed to signal on a variable schedule to remind the aides or research assistants to reinforce all girls who had good personal appearance and/or were engaged in socially appropriate behaviors. The signals were heard on all three floors of the cottage. Reinforcement was given in the form of praise, points, or tokens according to the particular system of each floor.

Reinforcing subjects intermittently increases the probability that behavior will maintain. It was specifically assumed that reinforcing Mimosa girls on this schedule would increase awareness in these two areas. The following data indicates the number of reinforcements given for both categories (see Table 16).

Table 16

Number of Girls Receiving Reinforcement
(Signal System) 1969-1970

	Mimosa "A"		Mimosa "B"		Mimosa "C"	
	Personal	Social	Personal	Social	Personal	Social
Dec. 1969	174	162	117	132	141	119
Jan. 1970	194	207	142	117	152	174
Feb. 1970	243	217	191	146	191	207
Mar. 1970	230	249	174	210	217	319
Apr. 1970	251	264	192	194	162	201
May 1970	250	274	176	296	241	210
June 1970	278	225	203	182	201	219

Individual Problems

The social behavior of retarded institutionalized adolescent girls is all too often nonadaptive. Typically, they display one of two behavioral extremes. Either they interact very little with other persons (social isolates), or they interact with others in a negative, annoying manner. This latter approach usually results in avoidance behavior on the part of the other person. In turn, the child must be even more negative in the future to get attention.

The general approach to this problem was for aides and research assistants to ignore undesirable behaviors such as quarreling, tantrums and clinging. They also were trained to be particularly sensitive to those behaviors which were positive and desirable. In the presence of such behaviors they presented social reinforcement or tokens, or both. Also, training programs were developed to create social situations in which there was a high probability of getting positive social interactions which were rewarding to the participants.

As with any general approach, it works in general, and does not work with a variety of individual problems that arise. Often it was necessary to devise specific techniques to solve specific problems. The following programs describe techniques used during the project with individual areas of social skills.

Placing Objects in Ears

Abstract

A resident of Mimosa "B" was causing irremediable damage to her ear canal by continually placing objects in her ear. Upon examining the treatment procedures used by the doctors and nurses in removing these objects, it was thought that these "red-carpet" conditions might be maintaining this behavior. After presenting this possibility to the hospital staff, it was agreed to treat this patient in a very matter-of-fact fashion. This technique was successful in eliminating the problem behavior.

For several months, a 14-year-old resident of Mimosa "B" had been observed placing rocks, beads and other small objects in her ear canal. They were always placed with such force that they could not be removed except by medical specialists. Since it was a behavior which occurred too intermittently to assign a full-time observer to gather data on the preceding and maintaining variables, a more informal approach was employed. All staff members who had knowledge of the situation were interviewed in an attempt to discover if they were aware of the stimulus condition preceding and following the response. These accounts revealed no pattern.

It was then decided to examine the procedures at the hospital when she went to have the objects removed from her ear. When the next incident occurred, a research assistant was sent to the hospital to observe the treatment. It was discovered that the child was getting the "red-carpet" treatment. She was taken care of almost immediately and nurses and doctors were profuse in their expressions of sympathy and concern. It seemed that this process might well be maintaining the behavior. Accordingly, a strategy for treatment was devised. The nurses and doctors at the out-patient clinic were given the child's behavioral history as it related to placing objects in the ear and were also told of our hunch that a modification in their treatment of the child might bring about a reduction in the behavior. Since irreparable damage had already been done to the child's eardrum and ear canal, the hospital agreed to try anything which might reduce further damage. The next time the child placed an object in her ear the psychiatric aide on the cottage greeted the incident with the attitude of "All right, see me tomorrow about it, I'm busy now." The following day the child was sent by herself to the out-patient clinic. At the out-patient clinic the only attention paid to her was to have her name taken by the nurse. Three hours later she was seen by the doctor who treated her in a very matter-of-fact manner and then assigned her to a recovery room. She remained for two weeks in the recovery room by herself. Her only interactions with the staff were at meal times, bed change and clean-up times. These interactions were brief and matter-of-fact. This treatment occurred twice thereafter. The cumulative record shows that after four months there had not been another incident (see Figure 41).

Throwing Eyeglasses

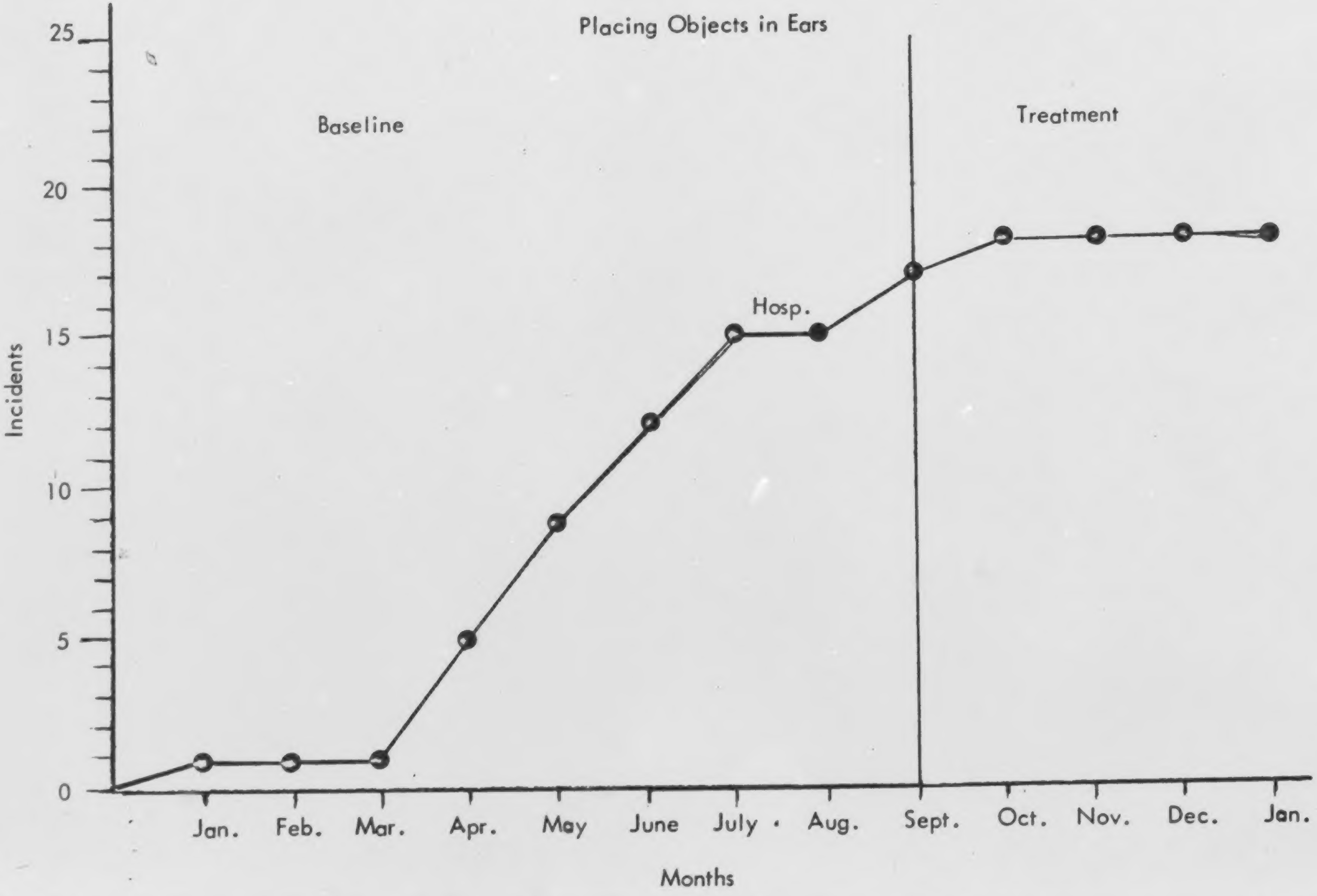
Abstract

A resident of Mimosa "B" was breaking her eyeglasses by throwing them on the floor. It was felt that this behavior was being maintained by the reinforcement received from adult and peer reactions to these events. When the subject threw her glasses they were picked up by the aide and the subject was required to pay tokens to redeem them. This technique was ineffective in modifying the behavior. The next technique consisted of purchasing shatter-proof lens and having the aide ignore the throwing behavior. This technique was effective.

The same 14-year-old resident of Mimosa "B" who placed objects in her ears also threw her eyeglasses (usually breaking them) on an average of once or twice each month. Again, an anecdotal record approach was used as the basis for designing a treatment. In this instance it seemed obvious that the reinforcement was coming from both adults and children who witnessed the event. The response varied, but apparently no one ignored the incidents. The first informal treatment consisted of the psychiatric aide picking up the glasses and keeping them until the subject understood that there were certain activities one could not participate in

Figure 41

Placing Objects in Ears



because eyeglasses were required. These were visual activities such as reading, watching television and going to movies. The first two times the subject did pay tokens to redeem her glasses but did not seem at all dismayed at the withdrawal of privileges. The rate of response did not drop during this treatment. The next time she did not bother to redeem the glasses with tokens and they were finally given to her. No data were kept during this phase. The first formal treatment process (data kept) followed a suggestion which came out of the cottage team meeting. During this meeting it was suggested that one reason it was difficult to ignore the behavior was the fact that the glasses always broke and this was too much for any adult to ignore. On the basis of this observation it was decided to purchase a pair of shatter-proof lens eyeglasses and try hard to absolutely ignore the behavior, knowing that the glasses would not break. The accompanying cumulative record demonstrates the cessation of responding (see Figure 42). However, the data should be interpreted in view of the observation that the subject was obviously pleased with the appearance of her new glasses. This sort of contamination is a fairly frequent phenomenon in free-field studies and does not necessarily negate the usefulness of the study.

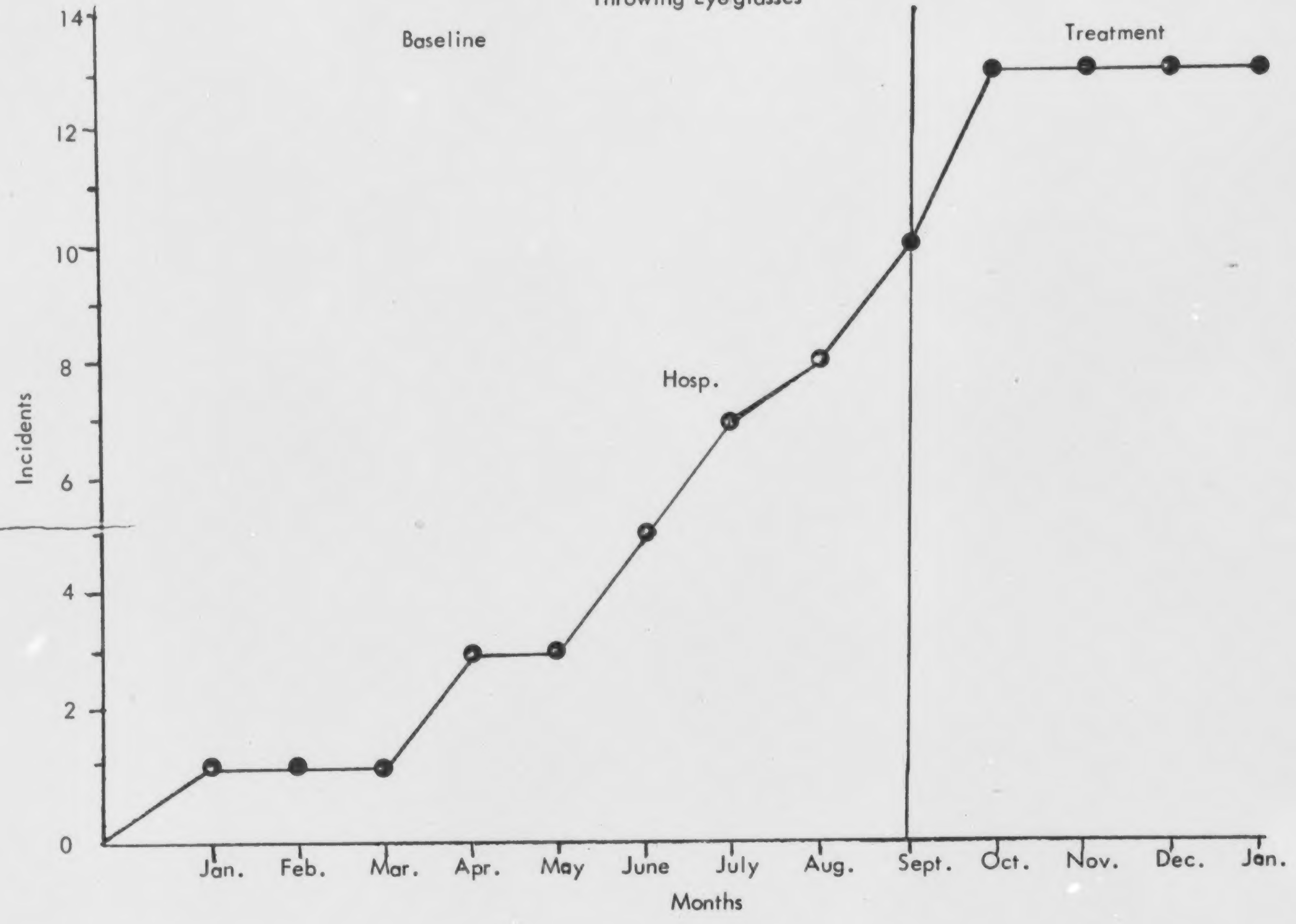
Food Stealing

Abstract

Food stealing was a wide-spread problem with the residents of Mimosa "B". General procedures were effective in reducing this behavior in all but one subject. Several techniques were employed to modify this particular child's behavior. They included: 1) satiation; 2) free feeding; 3) instructing other girls to return the stealing; and 4) withdrawal of reinforcement and use of punishment in the form of an auditory signal.

Experience during the first several months of the project led to the development of several techniques for modifying the behavior of retarded children in an institutional setting. Perhaps, however, our experimental frustrations led to insights that may prove even more valuable than our successes. One of these observations is that no single technique is likely to be effective with all subjects; i.e., 1) the same behavior may be maintained by different consequences in different children, 2) behavior is often maintained by several reinforcing objects or events, and 3) the persistence of undesirable behavior may be increased by the application of weak control techniques which fail to eliminate the behavior. This is analogous to a situation where resistance is increased to extinction under infrequent reinforcement by gradually reducing the frequency of reinforcement. These points and some others, as well, are illustrated in the case of a 13-year-old female mongoloid resident of Mimosa who stole food and other items from the trays of other children.

Figure 42
Throwing Eyeglasses



Food stealing was wide-spread among the children on the middle floor of the cottage. Before the beginning of this study, the psychiatric aides and research assistants on duty at the morning and noon meals reinforced the children for eating the food from their own trays. Tokens were delivered for short periods of time to girls who ate only from their own trays. This practice was effective with most children; however, some children continued to steal food. Food stealing was then punished by the withdrawal of a token from any child who was caught stealing. This procedure reduced further the number of children who stole food. Four or five children, however, continued to steal food.

With these subjects a more drastic step was decided upon. When a child was noticed stealing, the aide or research assistant removed the child's tray from the table. This method eliminated the behavior in all but one subject who continued to steal food at a high rate. This particular subject subsequently occupied staff time and effort intermittently for several weeks, but none of our techniques were effective. There were several possible explanations for the lack of success: 1) the child might actually be food deprived in spite of the fact that the servings, from our point of view, were more than generous; 2) the token and food withdrawal were in fact not punishing; 3) the delivering of tokens was not reinforcing; and/or 4) in spite of efforts to extinguish and punish stealing she was actually on a VR schedule of reinforcement sufficient to maintain the behavior. This latter possibility could be due to the fact that she had not been monitored closely enough to prevent her from stealing food.

At this point it was decided to construct a study which would allow us to control what seemed to be the relevant variables. Observations were made which allowed us to develop response criteria. The responses decided upon were: 1) food stealing--contact with and/or acquisition of other subjects' food; 2) proximity--hand or eating utensil within three inches of food on another subject's tray, but does not steal or touch; and 3) stealing of other objects--contact with and/or acquisition of objects other than food belonging to another subject such as napkin, utensil, water tumbler, etc.

Phase I: The baseline extended over 15 meals. The first graph shows the rate by response (see Figure 43). Food stealing was by far the most popular response, followed by proximity, followed by stealing other objects. The second graph shows all responses combined (see Figure 44).

Phase II: This first treatment condition was termed "satiation." It was initiated because of our suspicion that the child might actually not be receiving enough food. When the subject had finished the first tray, or indicated that she had eaten all that she intended to eat, a research assistant brought her a second tray of food. The subject ate both trays throughout this phase with undisguised enthusiasm.

A procedure followed throughout the experiment was to weigh the S daily, inasmuch as food intake was being manipulated. When the two-tray procedure had been running for several days, the subject had not yet gained weight; therefore, a health check was requested. This check

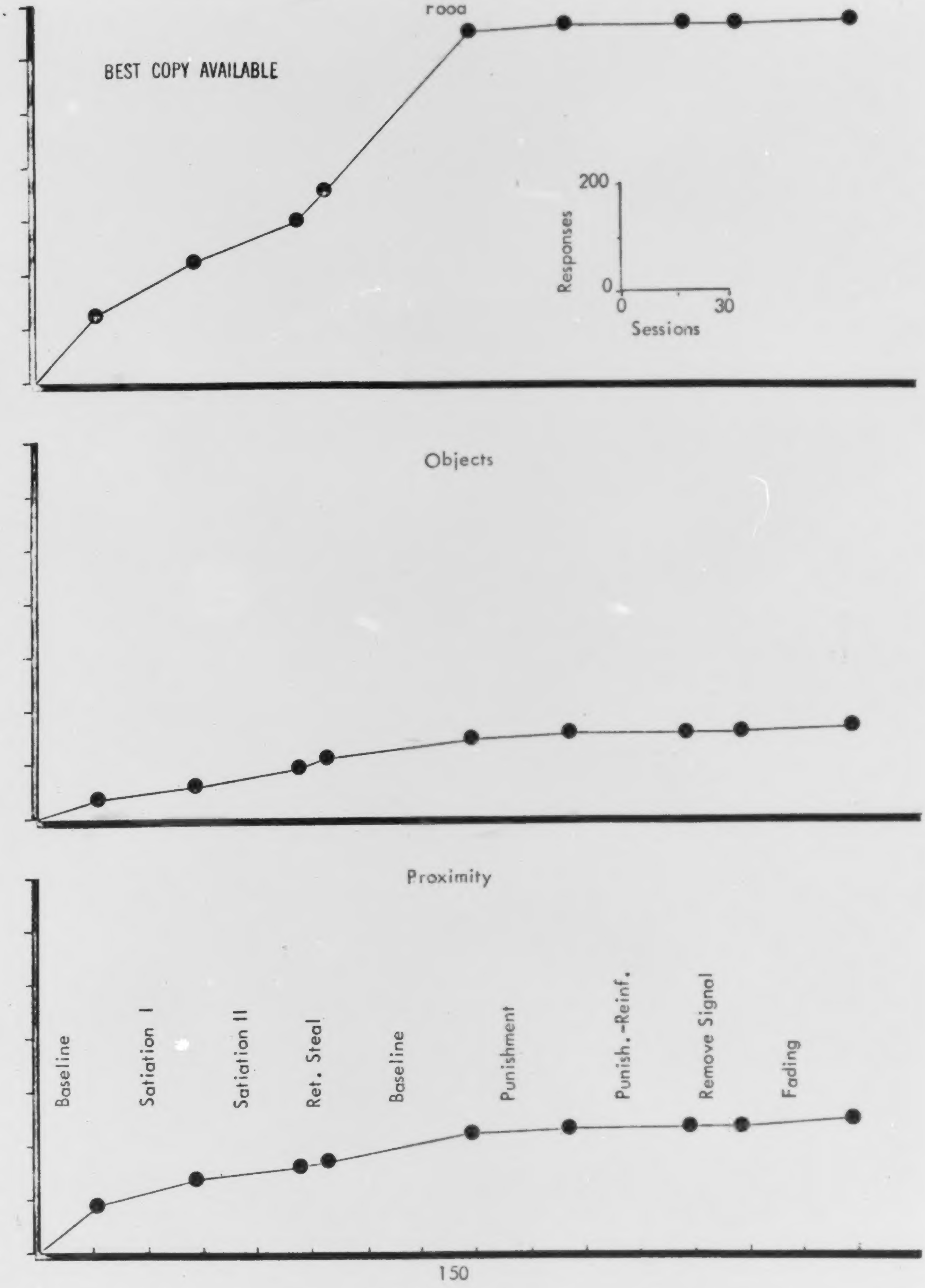
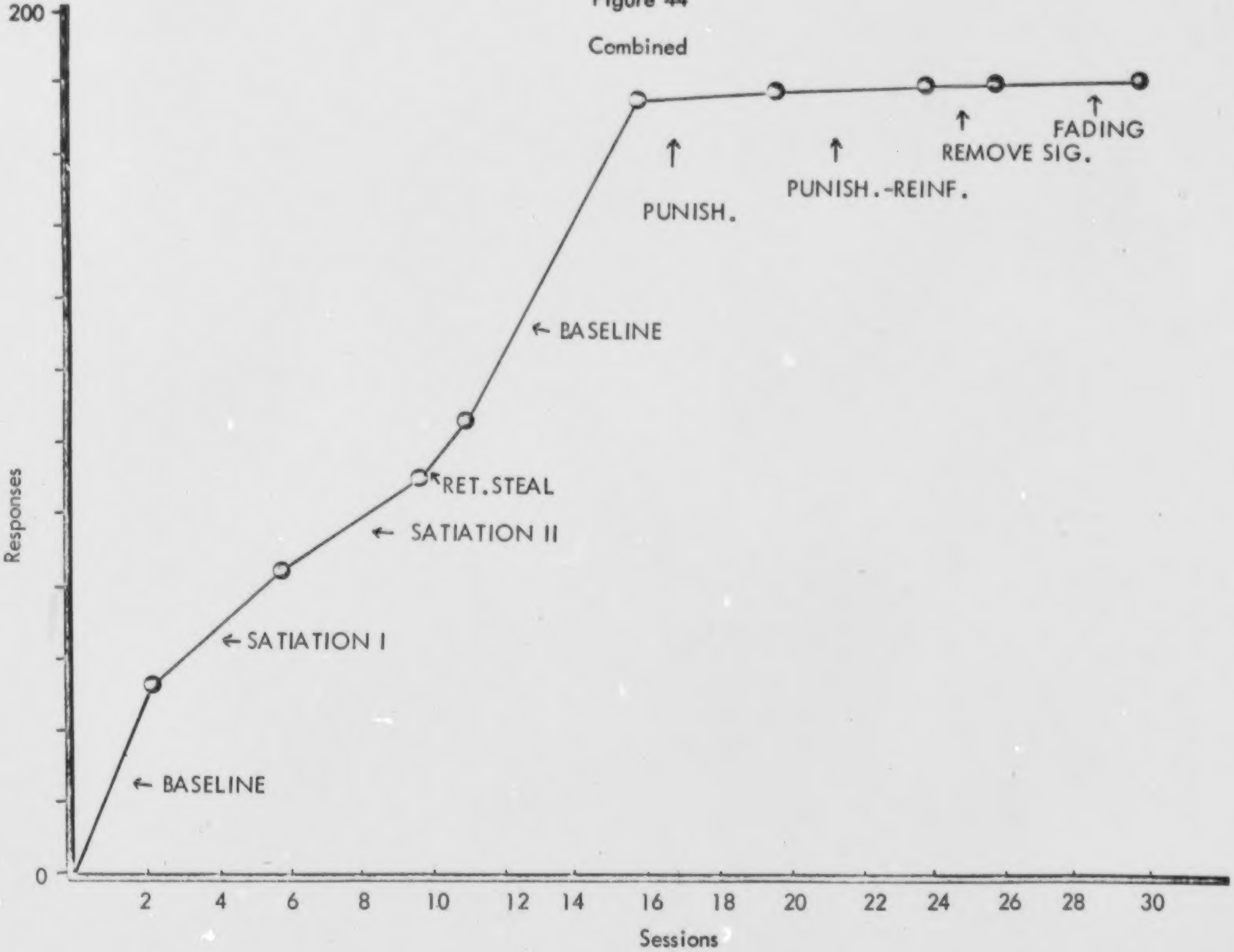

rooa
200
Responses
0
0
30
Sessions
Objects
Proximity
Baseline
Satiation I
Satiation II
Ret. Steal
Baseline
Punishment
Punish.-Reinf.
Remove Signal
Fading
150

Figure 44

Combined



revealed no glandular disfunction and no tape worm; however, she did have pin worms. This is a common condition among institutionalized populations. Also, it was discovered that all the other girls on the cottage had pin worms. The subject was treated with Provan, developed nausea, then contracted a cold and was hospitalized for three days. Subsequent to her release she continued to eat with the same gusto, but stole food at a slightly reduced rate. It was not possible to separate the possible effects of satiation, pin worms, the medication, the cold, or the hospitalization.

Phase III: This aspect of the treatment process was initiated because of the relatively high rate of stealing under the two-tray procedure. It was felt that the above procedure had not demonstrated that the subject might not be food deprived. In spite of the fact that she ate more than average meals by adult standards, she had not gained weight. At this point we decided to put the subject on free-feeding. She received one tray at the beginning of the session, but at any time after sitting down she could request (gesture) that she wanted more of something on her tray and a research assistant would immediately respond. The regular Hospital staff who had viewed our proceedings thus far with amused tolerance, seemed somewhat less amused and less tolerant during this phase of the treatment. They were convinced that she would not make healthful selections of food. However, over a period of one week it appeared that she was maintaining a perfectly well-balanced diet. At any given meal, however, it was another story. She might consume six or seven helpings of mashed potatoes and eight or nine slices of bread. At another meal she might consume a like number of ice-cream bars and several glasses of milk. At another meal she would eat nothing but salads or vegetables. Between meals, of course, she continued to eat her share of candy, ice-cream, pop, and potato chips as did the other girls on the cottage. Over-all, a slight reduction in response rate was noticed.

Phase IV: During the latter stages of Phase III, it was noticed that one of the girls who regularly ate at the subject's table had perfected a system to protect her own food. When the subject stole from this girl's tray she responded by stealing from the subject. It was decided to capitalize on this apparently serendipitous event. The other girls who regularly sat at the subject's table were instructed to return the steal if it occurred. The decision turned out to be both ill-timed and ill-advised. Very shortly the subject had discovered the reinforcing properties of this new procedure and her response rate increased dramatically.

Phase V: All treatment procedures were discontinued. The subject no longer received extra food. Frequency of stealing exceeded both treatment conditions and baseline period. It seemed safe to conclude that satiation had affected the rate of response, but the behavior had not been reduced to a socially acceptable level.

The other variable most likely to be maintaining the behavior was the reactions of the girls from whom she was stealing food.

Throughout the experiment a response record had been maintained which revealed the girl to whom the subject had responded and the type of response subsequently made by the subject. The responses by the other children at the table were categorized as a plus, minus, or neutral. There was no one response made which seemed to be maintaining the behavior. That is, response rate was almost equal under plus, minus, or neutral conditions. In spite of this, frequency of response differed between girls. She stole more consistently from some girls than others. The most careful observation failed to reveal an observable reason for this discrimination. On this point, the staff's experience with the subject on the cottage had more than once resulted in this sort of experimental frustration. An obvious, and very possible explanation was that the staff's skills in observation were not equal to the task. In some cases it seemed almost equally certain that the behavior was not being maintained by a consequence which could be observed. We found ourselves faced with the problem of trying to eliminate an undesirable behavior when: 1) our reinforcers could not compete with those the subject was receiving from engaging in the behavior; 2) the staff could not identify the reinforcer which maintained the behavior; 3) the staff could not control the persons or events which were maintaining the behavior; and finally, 4) the staff was not able to present a punishment which was severe enough to eliminate the behavior because of social pressures or reasons of humanity. In the case at hand, however, it seemed that the staff could not exercise the necessary control over the environment to eliminate the social reinforcement that the subject received from stealing food. The punishment that the staff proposed was withdrawal of reinforcement, in this case food. This solution had been applied, in principle, to the subject previous to the experiment, but to no avail. In retrospect it seemed that the probable explanation for its failure was because the aide or research assistant on duty had been trying to monitor the behavior of several girls at once and, therefore, the subject had usually been reinforced once or several times for stealing before she was apprehended. Also, in the past the subject had not been physically removed from the dining hall. She had simply had her tray removed from the table and was left sitting with the other children who still had trays. This probably occasioned an even higher rate of food stealing.

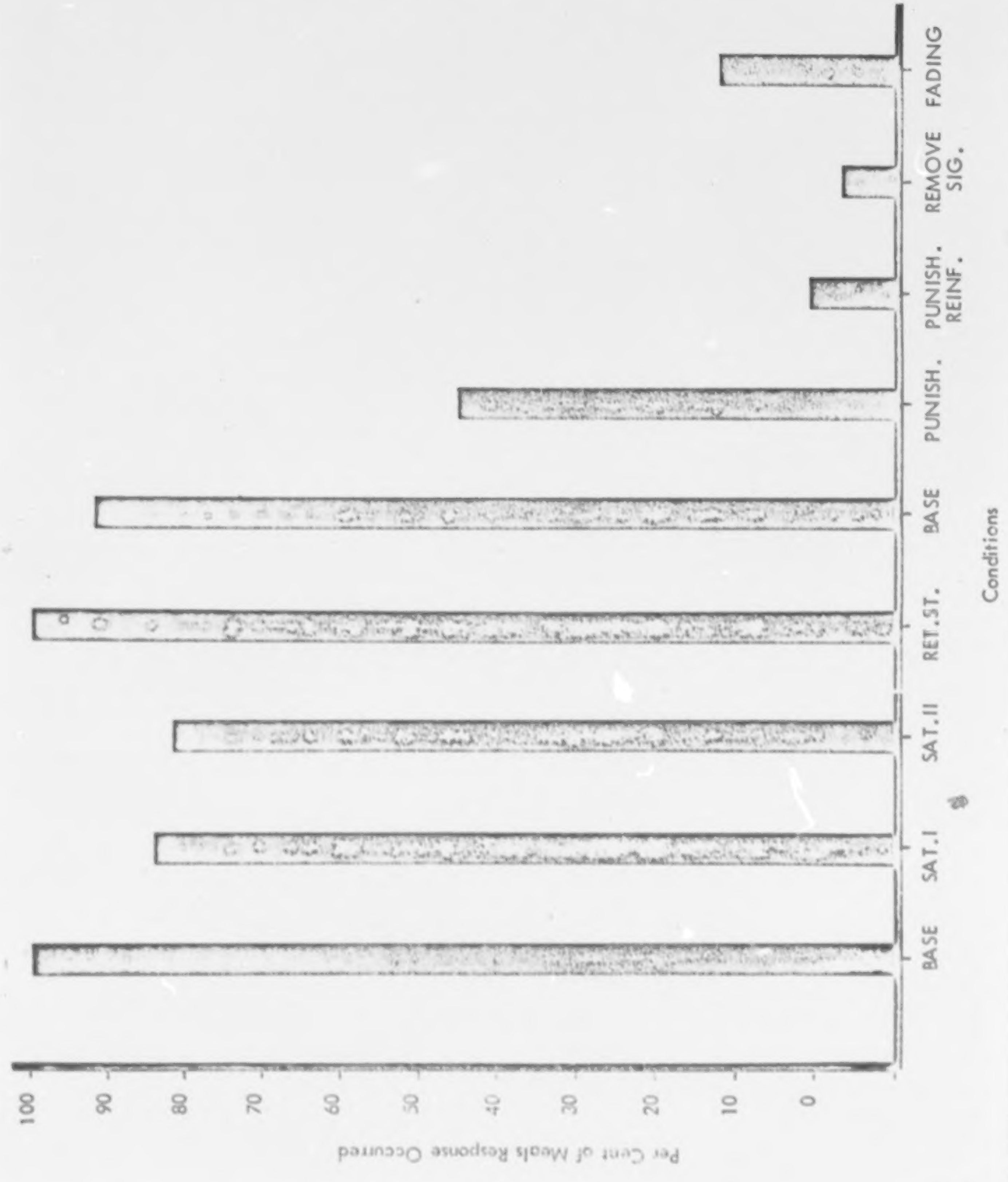
The proposal this time was to prevent the response of reaching to another tray being reinforced even once. Following the lead of the animal experimenters, the staff planned to focus on the first elements of the chain of motor movements which made up the response repertoire of stealing food. If punishment could be delivered while the subject's hand was in motion, traveling from the proximity of her own body to food on another tray, it was thought that the response could be more quickly and effectively eliminated. It was physically impossible for the experimenter to remove the subject from the situation at that moment in time, so a signal for punishment was sought. It was found in the form of a bicycle horn. It was large, shiny, and loud. The first few times it was actually used in the dining room it served to startle the girls, aides, cooks and experimenters. The subject continued eating without looking up. It took two pairings of punishment and noise before she would look up from her tray. In practice, it proved impossible to present the signal as quickly and precisely as we had hoped. The best that could be accomplished was to blow the horn by the time the subject's hand had reached the food on another tray. This was still before she had an opportunity to get the food to her mouth. Her motor movements were too quick to catch at the precise moment that was desired. A reduction in per cent of meals during which a steal occurred took place, but the data did not indicate the method to be as successful as was desired. As in many of our attempts, the subject had perhaps formed a way of beating the system. That is, she could steal late in the meal and still be reinforced before punishment. Whether or not the subject had discovered this, it appeared to be a plausible explanation for our lack of success.

Phase VI: This phase of the treatment process represented a combination of the strongest punishment available to us and the strongest reinforcement. The technique was to continue, unchanged, the punishment while adding a reinforcement contingency. If the subject was found with a hand in another tray, she was, as before, removed. But if she ate her tray of food without stealing, put it away, returned to her table and sat for 30 seconds without stealing, she was given additional food in an amount and type of her own choosing. This process could be repeated for as long as her cottage group remained in the dining room. The 30-seconds delay was stretched by 5 seconds each meal until it reached a maximum of 70 seconds. As Figure 45 indicates, this did not result in a total cessation of responding, but it was satisfactorily reduced. And, importantly, there was a qualitative change in the nature of the responses. They occurred late in the first or second servings, less quickly and were accompanied by a grin.

Phase VII: Since it was desired not only to satisfy our experimental curiosity, but also to provide a practical solution to the problem of food stealing, it was necessary to begin fading our controls. The presence of the bicycle horn within the subject's visual range served as a signal for punishment. Also, it seemed likely that the presence of the experimenter sitting only a few feet from the subject served as a signal. The first step in the fading process was to remove the horn. The same experimental procedures were followed except that punishment was not preceded by noise. A satisfactorily low rate of response was maintained under this condition. The next step was to begin fading the presence of the investigative personnel. First, the research assistant who presented both punishment and reinforcement was removed from the setting. The observer, however, remained. The research assistant was replaced by the psychiatric aide in charge of the cottage. The aide sat where the research assistant previously sat during meals. During the first meal under these conditions, the aide maintained the vigilance that the research assistant always had. On succeeding meals she paid less and less direct attention to the subject and began to divide her time between supervision of the other 26 girls for

Figure 45

Modification of Food Stealing



whom she had responsibility and the experimental subject. She continued, however, to remain seated only one table away from the subject. This procedure was followed so that the staff could get back to a fairly normal method of controlling the behavior. It was impractical to continue as we had during the study period. Since the staff had accepted the responsibility for demonstrating the usefulness of operant techniques with the girls on the cottage as well as doing research, we did not at this point remove all experimental contingencies in order to recover baseline. We only withdrew to that point where it seemed possible to maintain an acceptably low level of responding. The observer was gradually faded, but two procedures developed during the experiment were retained. The aide continued to sit near the subject and removed the subject if she were observed stealing, and she also brought extra food if the subject did not steal (see Figure 46).

Placing Materials Before Other Persons' Faces

Abstract

Showing objects and art work to adults is deemed desirable and is socially reinforced. However, one resident on Mimosa "B" was inappropriate in presenting items to adults. Techniques used to modify this behavior included taking the object from the child when it was presented inappropriately, and instructions given to the girl on ways to obtain adult attention.

Many Ss show art work or special-education projects to the cottage staff members. Such behavior is deemed desirable and is socially reinforced. However, one 15-year-old girl on Mimosa "B" frequently placed books, papers, and objects in front of adults' faces. If they ignored these attempts to obtain attention, she would wave the object close to their faces. The procedure for eliminating this behavior was as follows. The cottage personnel were instructed to take the object(s) from the girl when she presented them in an inappropriate manner or at an inappropriate time. Then, at a later time, the adult approached the child and instructed her in appropriate ways to obtain adult attention.

After losing several items, the S would not approach the adult unless the adult was settled in a chair, or gave some indication of not being busy. The S would then approach and show the adult the object at a more appropriate distance.

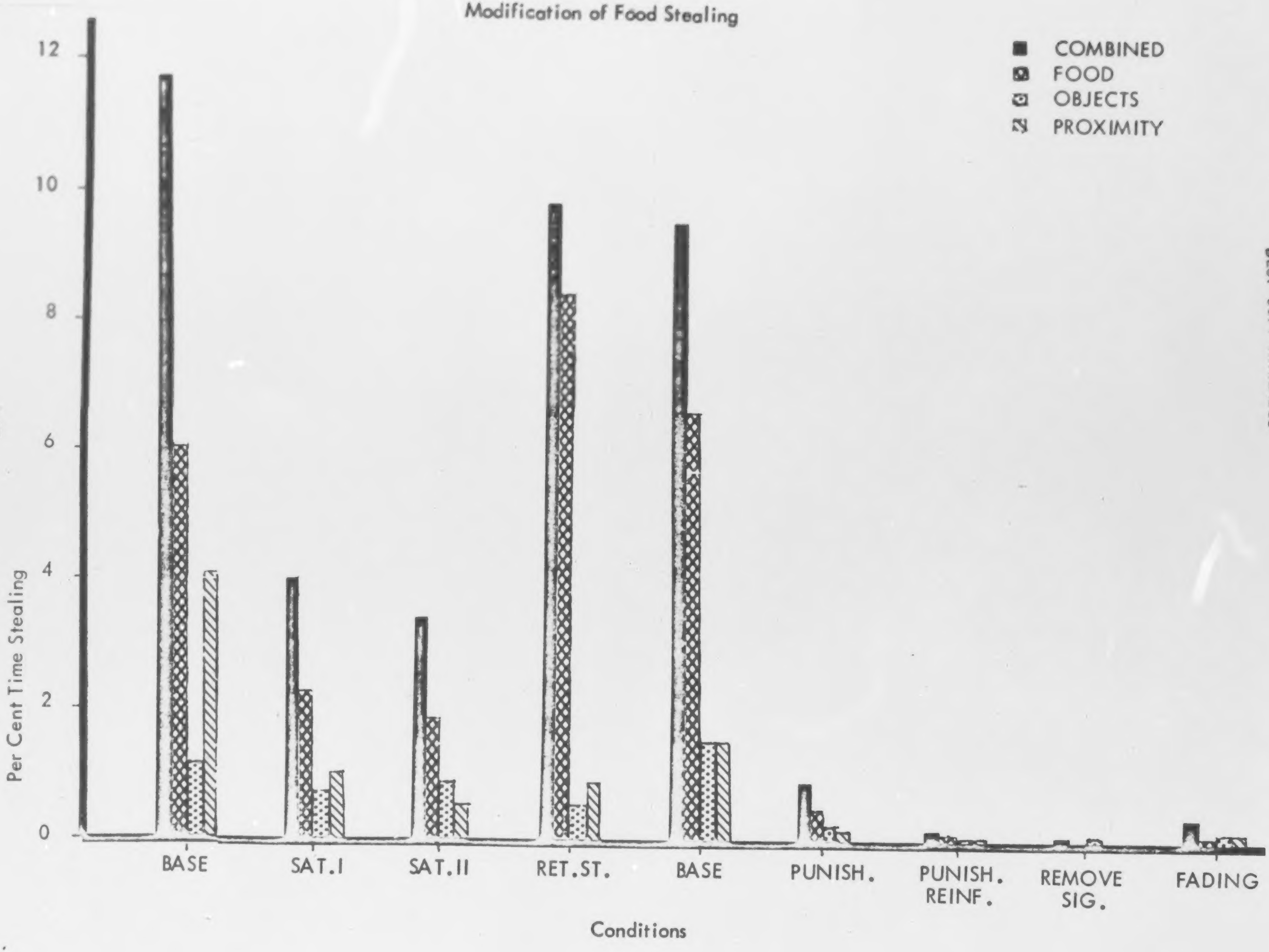
Reduction of Butter Smearing

Abstract

One resident of Mimosa "B" exhibited a behavior of smearing butter on her body and clothing. The first techniques consisted of withholding butter from the girl's food tray. This was ineffective because, when the butter was reintroduced the behavior reoccurred. The next step was to remove the tray when she smeared

Figure 46

Modification of Food Stealing



> butter. Removal of the tray was not totally effective, the subject continued to smear butter, but only at the end of her meal. Reinforcement using tokens and praise was given next. This technique was effective even after a phasing out of the reinforcement.

One moderately retarded 14-year-old resident from Mimosa "B" smeared butter on her face, hands, and dress. The first dining room procedure for controlling this behavior involved withholding butter. Butter was withheld for four weeks. However, when butter was again given to the girl she resumed smearing. At this point, she was given butter for four days. She smeared butter at each of the 12 meals. After the 12th meal period, a punishment procedure was introduced. This procedure involved taking the girl's tray as soon as she smeared butter, and forbidding cottage store privileges. She continued to smear butter. It was noted, however, that she did not smear butter early in the meal. This observation led to the use of positive reinforcement (praise and tokens) for not smearing butter early in the meal. This procedure led to an almost immediate reduction of butter smearing. When the reinforcement was discontinued, the butter smearing did not return to its original baseline frequency.

The specific procedures followed for modifying the butter smearing behavior were:

Phase I: When the S was observed smearing butter--a) her tray was removed, b) she was told why the tray was removed, and c) she was restricted from the token store later that day or the next. The S was reinforced with candy and social praise if butter were not smeared. On the fifth day, S smeared butter at the first meal, and her tray was removed. She was told why the tray was being removed, and that she was restricted from the token store. She continued to smear butter at the next two meals, and at all three meals the following day. During the four days of the first modification procedure, the butter smearing had not deviated from its every-meal occurrence. It was further noted that the S did not smear the butter until a substantial portion of each meal had been consumed. (Her trays were being removed after the occurrence of butter smearing.) At this point, it was assumed that the S was receiving reinforcement in the form of punishment paired with adult attention. On this assumption, and to better provide an opportunity for reinforcement for not smearing butter, a second procedure was initiated.

Phase II: The S received tokens and social reinforcement immediately upon sitting down to eat, and intermittently during meals; e.g., "Good girl, you have not smeared butter on your clothes," and several tokens were given. Tokens were taken away if butter were smeared in the pause between reinforcement. Tokens were taken away with little or no facial expression, and no verbal response from the adult. If the S attempted to "show off" the smeared area on her clothing upon returning to the cottage, the adults were instructed to put this behavior on extinction.

Phase III: During this phase, an attempt to reverse the butter-smearing behavior was begun. If the S smeared butter on her clothing, she was to be scolded and responded to in as similar a manner to baseline conditions as possible. Results are presented in cumulative form. The ordinate represents the cumulation of meals at which butter was smeared. The abscissa presents the number of meals and the phases. During baseline conditions, the S smeared butter on herself at every meal. The procedures used in Phase I were punishing butter smearing by removal of the S's tray and restricting her from the store, and reinforcing nonbutter smearing at the end of a meal with social praise and candy. Even though verbal directives had been given, butter smearing continued at every meal. Therefore, the use of punishment without reinforcement was not effective.

In Phase II, procedures were changed to allow for reinforcement of successive approximations toward the terminal goal of eating a full meal without smearing butter. This was done by immediately presenting tokens and praise to the S when she sat down, and before she had an opportunity to smear butter. As can be seen from the graph (see Figure 47), this procedure was effective immediately upon its initiation. Phase III represented an attempt to reverse the butter smearing behavior by returning to the baseline contingencies. The behavior was emitted and was followed by consequences similar to those in baseline conditions; however, it was impossible to reverse the behavior to its baseline frequency.

Elimination of Shoe-Tearing Behavior

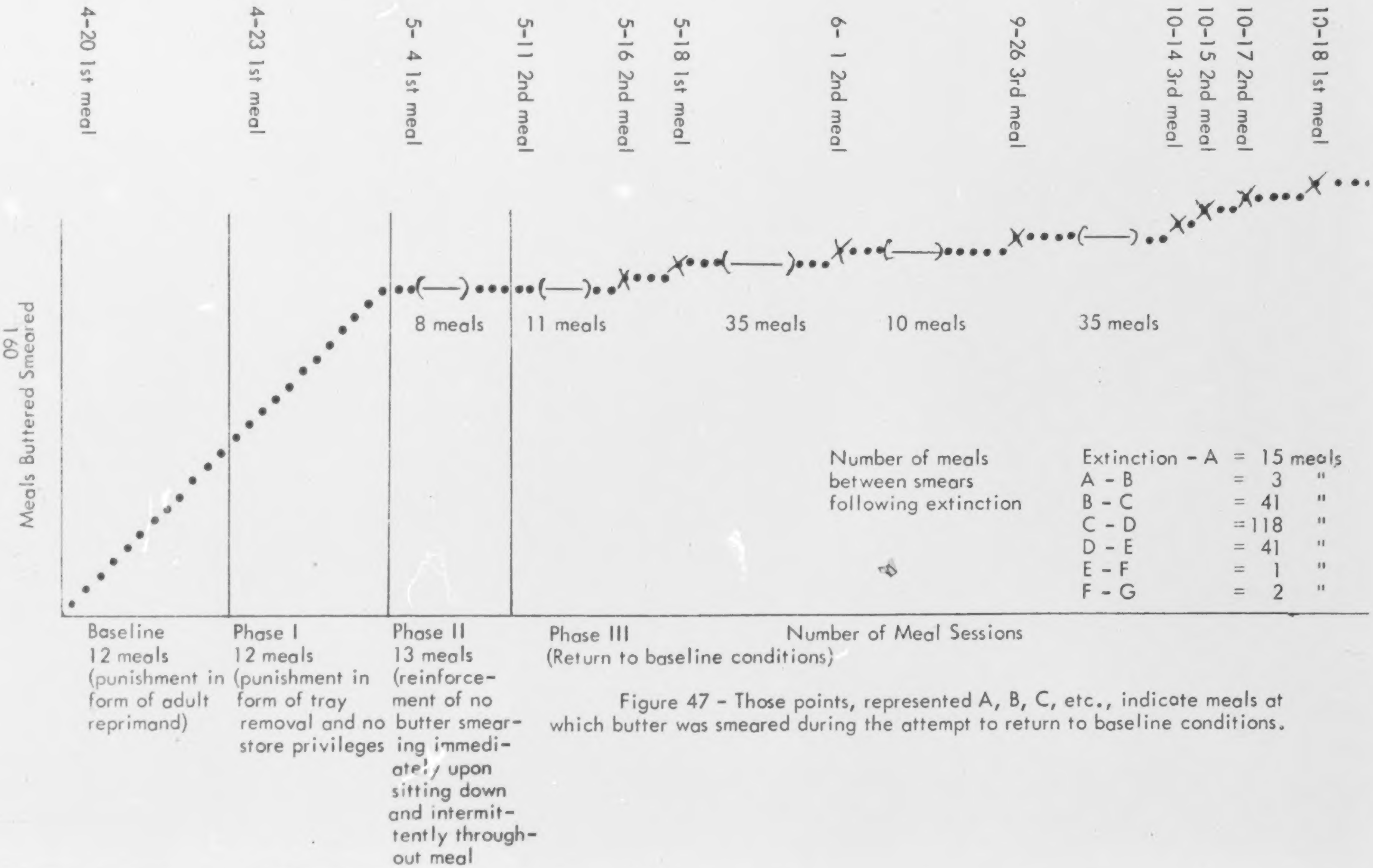
Abstract

A resident from Mimosa "B" had observed another girl tearing her shoes and consequently receiving a new pair. The subject was then observed tearing her own shoes. Instead of receiving a new pair of shoes, this subject was required to pay tokens. It took the subject approximately two weeks to completely pay for her new shoes and she took good care of them.

One of the girls on Mimosa "B" is a deaf mute with a large imitative repertoire. On one occasion she observed another girl tear the sole from a shoe and, consequently, receive a new pair. Subsequently, the deaf child was observed, each day, tearing the leather stitching around her loafers (which were originally in good condition) until they were no longer wearable. At this point she was taken to the clothing room and allowed to choose a pair of shoes she desired. Instead of receiving the shoes immediately, however, she was shown a bar-graph chart with a picture of the chosen shoes. It was explained, through gestures, that she would have to pay 1,000 tokens for them. Each time the girl visited the store, she had to place all her tokens in payment for the shoes. As she paid tokens, the bar-graph indicating 1,000 tokens was gradually filled in. At first the child cried each time she had to spend all her tokens on shoes.

Figure 47

Modification of Smearing Butter on Clothing



Number of meals between smears following extinction

Extinction - A = 15 meals
A - B = 3 "
B - C = 41 "
C - D = 118 "
D - E = 41 "
E - F = 1 "
F - G = 2 "

Figure 47 - Those points, represented A, B, C, etc., indicate meals at which butter was smeared during the attempt to return to baseline conditions.

However, when the bar-graph was nearly full, she became very excited and visited the store every day to make payments on her shoes. It took approximately two weeks to complete the shoe payments, and the subject took very good care of her new shoes.

Modification of Quasi-Masturbatory Behavior in a Downtown Setting

Abstract

A resident of Mimosa "B" emitted a behavior of placing her hand in her pants and then smelling her hand. The modification of this inappropriate social behavior consisted of intermittantly reinforcing the subject with pennies for not emitting this behavior in stores in the community. The subject was allowed to spend her pennies for items of her choice. This technique was effective in modifying the subject's behavior.

One moderately retarded 13-year-old resident of Mimosa"B" emitted a behavior referred to as "wiping," which can be defined as placing her hand in her pants very quickly, and then smelling her hand. This child also sucked her two middle fingers and ignored directives until a time of her own choosing. On one occasion, she was to be taken downtown to purchase a pair of oxfords. It had been previously established that money was a reinforcer, so she was told that she would receive pennies for acting like a "young lady," and these pennies were to be hers for spending while downtown. In the first store the child earned four pennies, presented intermittently for good behavior. "Wiping" behavior was observed only once. At this time, the research assistant told her she was not being a "young lady," and pennies were withheld. Thereafter, in the first as well as the second store, her behavior was very appropriate. The four pennies earned at the first store were spent on a gum machine. On entering the second store, she had no more pennies and thus had to maintain appropriate behavior to acquire pennies with which to buy gum in the second store. Returning from downtown, the child showed the shoes, pennies, and a puzzle (bought with change from a check sent by her parents for the shoes) to her peers. It appeared that pennies were a powerful enough reinforcer to maintain this child's appropriate behavior over a period of one and a half hours. Previous to this time, maintenance of appropriate behavior had been limited to very short periods of time.

Control of Thumb-Sucking Rate

Abstract

Systematized observations revealed that one subject of Mimosa "B" was sucking her thumb much of the time. The first treatment condition consisted of a combination of adult instructions and reinforcement. The data revealed that thumb-sucking behavior was under environmental control. The techniques reduced the rate to near zero.

Thumb sucking is a prevalent problem among children. Institutionalized retarded children are no exception to this generalization. The subject of the demonstration to be described was a 13-year-old Caucasian girl with an IQ of approximately 32. Casual observation revealed that she sucked her thumb much of the time. Systematized baseline observations were made on the cottage and in the classroom. Four activities were recorded by timed sample observation:

Thumb sucking - thumb or finger in mouth or touching lips;

Hands-on-face - hands or fingers touching face, but thumb or fingers not on lips or mouth;

Activity - subject manipulating some object with hands;

Talking - subject making an audible verbalization.

Measurement consisted of counting the frequency of each of these responses if they occurred within a timed sample interval of 10 seconds. Two observers achieved 90 per cent reliability on this observational procedure. The frequency of response intervals was then converted to responses per minute. The duration of observation sessions varied from 15 to 60 minutes.

During the observation period the subject did not suck her thumb in the classroom, but sucked her thumb an average of 2.2 times per minute on the cottage. The demonstration consisted of the following five phases:

Phase I: Consisted of baseline on cottage where frequency of thumb sucking and three other related behviors were recorded at random times during the day for five days.

Phase II: Consisted of the first step to demonstrate that thumb-sucking rate could be controlled through a combination of adult instructions and reinforcement. Initially, when the adult approached the child, the child would withdraw her thumb from her mouth. The adult then reinforced thumb sucking with a token or piece of candy on a variable-interval schedule (mean time about 30 seconds) for three sessions. Rate of thumb sucking increased from 2.2 responses per minute during baseline to 6 per minute during Phase II.

Phase III: The adult instructed the subject not to suck her thumb. She was given reinforcement (a token or piece of candy for having her hand out of her mouth) first on a fading-interval schedule of about one reinforcement per 30 seconds, then one reinforcement per 40 seconds, and then one reinforcement each 50 seconds. The procedure was in effect for three sessions.

Phase IV: Consisted of three observation sessions, 11 days after the termination of all reinforcement in Phase III.

Phase V: Consisted of three observation sessions approximately five months after the termination of Phase III.

Table 17 shows the rate of thumb-sucking responses as well as other behaviors during six phases. The other behaviors may have occurred during Phase II and III, but were not recorded so these cells were labeled "ignored" during that time.

Table 17

Mean Thumb-Sucking Responses Per Minute

Behavior	Baseline on cottage	Instruction + reinforcement for thumb-sucking on cottage	Instruction + reinforcement for nonthumb-sucking on cottage	Follow-up Baseline#1 on cottage	Follow-up Baseline#2 on cottage
Thumb sucking	2.2	6.0	0.0	0.6*	1.00
Hands on face	.3***	Ignored	Ignored	0.5**	0.5**
Activity	1.7	Ignored	Ignored	3.2	3.1
Talking	2.4	Ignored	Ignored	3.1	2.4

*6 per 10 min.
**5 per 10 min.
***3 per 10 min.

The behavior during baseline on cottage (Phase I) occurred at a mean rate of 2.2 responses per minute. In Phase II when the S was instructed to suck her thumb, and, consequently reinforced, the rate increased to a maximum of six responses per minute. Instruction and reinforcement for not sucking the thumb reduced the rate to zero during Phase III. The behavior still occurred on the cottage during the follow-up period (Phase IV) 11 days after Phase III, but at a lower rate (a mean six times per 10 minutes) than in previous cottage baseline observation. A follow-up observation period five months later showed a mean rate of one response per minute (Phase V), which was an increase over the first follow-up periods, but still less than in the first cottage baseline period.

Rate of talking remained essentially stable for Phase I, IV, and V. There was little difference between the baseline and follow-up observations for the number of times she placed her hands on her face.

The data revealed that thumb-sucking behavior was under environmental control. There was no thumb-sucking in the classroom. Moreover, adult instruction and reinforcement for not sucking the thumb reduced the rate to near zero.

The matter of generalization to the cottage is not as clear. Both follow-up observations on thumb-sucking showed a statistically significant decrease in mean rate when compared to the first cottage baseline, i.e., from two responses per minute to one response per one and one-half minutes (follow-up baseline, Phase IV, $P = .025$), and to one response per minute (follow-up baseline, Phase V, $P = .05$) five months later. Inversely, the baseline comparisons of activity with the hands increased during these periods ($P - .025$).

Reduction of Whining and Complaining

Abstract

The subject of this study demonstrated chronic whining and complaining. Techniques were established to develop adult attention as a reinforcer during work period and establish a peer relationship. The controlled use of personal attention was effective in decelerating the whining and complaining responses.

The subject of this demonstration was a moderately retarded 16-year-old girl who whined and complained chronically. Medical examination revealed no physical reason for such complaints. Casual observation revealed that the S emitted loud complaints and whining sounds frequently during the day, but it was most apparent during the morning work routine on the cottage. The usual reinforcement procedure of presenting eight tokens to all workers meeting performance criteria had produced no demonstrable effect on the deceleration of the S's problem behavior. In fact, the S frequently did not complete work on time because of time spent complaining or whining. Consequently, reinforcement for all workers was either delayed or withheld for that day.

As a result, the staff found it necessary to place her in an isolated work situation which required no cooperation with others. Not only did this seem to be unsatisfactory for the development of cooperative work behavior, but in addition, the whining and complaining continued to occur even in the individual work setting.

Discussion among staff indicated that a poor social and personal relationship existed between the staff and the S, i.e., the behavior emitted by the S was aversive and, consequently, the staff avoided extended personal or social interaction with the S. If this were true, a controlled use of personal attention might function as a reinforcing consequence and provide conditions necessary for the modification of the problem behavior.

Phase I: (baseline observation) - The S was assigned a work task (the cottage work period lasted about 45 minutes and required all residents to perform assigned tasks, e.g., sweeping, mopping, dusting, etc). The E tabulated the frequency of whining sounds and complaints during the work period. The intensity of these responses were easily heard anywhere on the cottage floor. Data were collected for four sessions.

Phase II: (development of personal attention as a reinforcer) - The S was assigned a work task, but was assisted by E in every way. If the S began to complain or whine, the E would immediately say, "It's all right, I will take care of it." The E decided when the work was completed. If some part of the task was incomplete, the E would verbalize the need of completion, and then complete it. Intermittently during this phase, the E would verbalize the need and offer the S an opportunity to complete it. The main purpose was to attend constantly by working, talking, and joking with the S. This phase lasted for five periods.

Phase III: (intermittent work assistance) - A task was assigned to the S, and the E attended for half the session by talking, praising, and joking. The E assisted the S in the completion of the task during the last half of the period. However, if the S requested assistance during the first half, the E would help. After completion, the S was asked, "What can we do to make this look better?" This was done as an attempt to get the S to initiate work. There were four sessions in this phase.

Phase IV: (intermittent work assistance plus peer) - The S was assigned a task, and the E attended for half the session by talking, praising, and joking. A peer was brought in during the last half of the period to aid in completion of the task. The E assisted in the completion of the task if requested to do so, but mainly praised good work between the S and peer. This phase lasted two sessions.

Phase V: (withdrawal of attention when S complained or whined) - The S and peer were assigned a work task to complete during the work period. The E stood in the doorway of the work area and observed the S and peer. Praise was delivered intermittently for good work. The E would leave the area completely if the S complained or whined. She would return after the complaining ceased, and praise good work. Twenty sessions constituted the time of this phase.

Phase VI: (standard reinforcement procedure) - The S was assigned a task with one or more residents, depending on the requirements of the job. The E paid intermittent visits to the S's work area and praised good work. This is the operational procedure used for all work areas. If the S complained or whined, the E left that area immediately, and did not come into the area if the S were whining or complaining. This phase continued and data were collected for 17 sessions.

An analysis of the data revealed that the S's complaints decreased from seven per day (Phase I) to one every four days (Phase VI). This decrease was statistically significant beyond the .005 level according to the Fisher Exact Probability Test. The controlled use of the personal attention of the supervisor was effective in decelerating the whining and complaining responses during the work period. The schedule used was effective and probably would be useful in other clinical settings.

Training a Special Postural Response

Abstract

This individual problem dealt with a resident of Mimosa "C" who was to be placed in a sheltered workshop and foster home. The prospective parents decided against accepting this child because of her habit of hanging her head when she was spoken to. Demonstrations were given by a research assistant and the girl was requested to imitate those demonstrations. These procedures were effective in changing the behavior. The foster parents were pleased with the progress and accepted the child into their home.

Many children manifest maladaptive social behaviors which are handicapping to community transition. Often these behaviors are highly individual, do not appear on the checklist of social behaviors, and cannot be modified by group corrective techniques. Ruth C. had made significant improvement in all training programs and, over a period of several months, had made a good work adjustment in a community sheltered workshop. Arrangements were made to place her in a sheltered workshop in another city for job training, and, at the same time, a foster family was tentatively located. This latter arrangement was necessary because the girl was a state ward (parents deceased).

The foster family visited at the Hospital with Ruth to determine if the placement were feasible. They subsequently decided against accepting her into their home. Careful questioning led the staff to the conclusion that the most important objection held by the interviewing couple was the girl's habit of hanging her head when she was spoken to. Concomitantly, she either did not answer questions or answered in too brief a fashion while continuing to hang her head.

Two training sessions led to successful modification of the behavior. In a one-to-one situation with a staff member, the girl was told the nature of her undesirable behavior, and also the nature of the alternative, expected behavior. Demonstrations were given and the S was asked to imitate. Corrections were made in her response, and further demonstration was given. The subject was asked to role-play the critical situations and also to practice in front of a mirror. At the end of the training sessions it was explained that all staff members were expecting correct "heads-up, look-them-in-the-eye" behavior.

The procedure was effective on the cottage and the prospective foster parents were informed of her progress. This time Ruth was invited to spend a week in their home on a trial basis. At the end of that time, the couple informed the staff that they were well pleased with Ruth's behavior, and would like to keep her in their home.

OCCUPATIONAL SKILLS

The end goal of training on Mimosa is sheltered community placement. With few exceptions this cannot be accomplished unless the girl is capable of gainful employment. The exceptions are usually cases where the girl returns to her own home environment. Although the occupational training programs were designed to contribute to employability, these skills are also valuable should the girl be returned to her home environment. With these skills, the girl is a contributing member of the family and, thereby, more acceptable. Some programs undertaken by the Mimosa staff were vital but indirect, such as responding within three seconds to a command or request and creating a positive attitude toward work. The first subsection deals with various techniques to create a positive attitude. The second subsection deals with actual occupational training.

Work Attitudes

Training retarded individuals to perform occupational skills is only half of the problem of making these individuals employable. Critical to their success on the job is being willing-to-try. This section deals with various techniques used to train the Mimosa girls in appropriate work attitudes.

Reduction of Time Required to Complete Daily Cottage Chores Mimosa "B" (ages 12-16)

Abstract

The girls on Mimosa "B" were slow in completing their routine cottage work assignments. Procedures were introduced to make their work more prompt and efficient. These procedures included: signaling the end of the work period with a timer; no token reinforcement given unless all girls' work met criterion; calling the names of nonworking girls over a loud speaker, and gradually decreasing the supervision and time allowed. Time required to complete assigned tasks was reduced from 68 minutes per day to 45 minutes per day.

The basis for employability included appropriate manners and attitudes in a job setting. The girls on Mimosa "B" had been trained to complete routine cottage work through reinforcement techniques. In general, their work was adequate but slow. The purpose of the procedures reported in this section was to decrease the time required to perform routine work on Mimosa "B". Such a program was deemed desirable for two reasons. First, efficient and prompt work behavior is valuable in almost any living situation, and second, by completing work more rapidly, the girls would have more time to engage in other training programs.

The following procedures were initiated in 1967 as follows:

Baseline observation (13 sessions) - the duration of the work period was timed. Supervision was continued as in the past, i.e., checking individual work upon request of the Ss, requiring unsatisfactory work to be satisfactorily completed, and paying tokens when all tasks were completed. The mean time per session required to complete work during this phase was 64 minutes.

Phase I: (introduction of time-clock buzzer, and reinforcement without time criterion, three sessions) - The buzzer was used to signify the end of the work period. An announcement was made stating that the buzzer would sound when all work was finished, and all girls who had completed their work satisfactorily would receive eight tokens. The mean time spent during this phase was 68 minutes per session. Individual requests for work check were granted.

Phase II: (reinforcement with 60-minute time criterion, six sessions) - This session introduced the first of a series of gradually decreasing time limits within which work had to be completed before reinforcement (eight tokens per subject) occurred. Three consecutive days with work being done within the time limit (60 minutes) was required for stability. Six sessions were required before the three consecutive days' criterion was met. Individual requests for early work check were granted. If one subject did not complete her work satisfactorily and within the time limit, no member of the group received tokens. The supervisors remained in the work area continually, showing subjects how to speed up their work.

Phase III: (same as Phase II, but with 55-minutes time limit) - Twenty-five sessions were required before the three-day criterion was met.

Phase IV: (same as Phase II, but with 50-minutes time limit) - This phase lasted 54 sessions, but criterion was not met.

Phase V: (time limit of 50 minutes, eight tokens were given as reinforcement) - A change in procedure was required. Individual requests for work check were not granted until after the buzzer sounded. The supervisors remained in the aide station and did not verbalize with the Ss. Work was checked on an intermittent schedule. It required nine sessions before the 50-minute criterion was met.

Phase VI: (time limit of 50 minutes, reinforcement was eight tokens) - Subjects were not given work checks upon request. This phase lasted 15 sessions.

Phase VII: (time limit of 45 minutes, criterion was not met) - The supervisors remained in the aide station without giving any periodic checks. This procedure was continued for 12 days when it became apparent that the girls were not meeting criterion. Several girls were not working, so a new procedure (Phase VIII) was initiated.

Phase VIII: (time limit of 45 minutes, malingerers announced over loud-speaker) - The supervisors used a loud-speaker system to announce the names of girls who were not working. This procedure lasted for 30 sessions before 45-minute criterion was met.

Phase IX: (45-minute limit, no announcements) - Announcements were not made, but supervisors remained in an observation booth on the cottage. This procedure required 15 days before the 45-minute criterion was met.

Phase X: The supervisors returned to the aide station. Twelve days were necessary before the three-day criterion was met. The number of tokens per S was raised to 20.

Table 18 shows the gradual decrease of required time limits beginning with Phase II, the number of days required to meet the stability criterion of three consecutive days within the time limits, and the supervisory procedures used in each phase.

The main problem of the work program was meeting the 50-minute time limit. The elimination of granting requests for approval of each S's work before the time limit was completed was successful in meeting this time limit for three consecutive days.

The 45-minute time limit also produced a problem, especially if the supervisor did not make periodic checks on work. The problem of malingering was observed which was solved by announcing the names of the malingerers over the loud-speaker system from an observation booth.

The final phase of the program is currently in operation, and the work behavior is being maintained within the 45-minute time limit. No work checks are being made until the end of the time-limit period, and the supervisors conduct all observation within the aide station.

Work Management Program Mimosa "C" (ages 16-21)

Abstract

A highly systematic, highly contingent work routine was developed on Mimosa "C" to improve the girls' work skills and work attitudes. Each girl was given an off-cottage work assignment. They were also given individual assignment sheets which included a printed clockface--indicating the starting and stopping time. The girls were then made responsible for getting to and leaving work on time. Each day the job supervisor signed the work card according to the performance. These signatures were exchangeable for the girl's necessities (meals and beds). All girls showed improvement using this system.

Table 18

Supervisory Procedures and Time Limit Requirements for Mimosa "B" Work Program

Phases	Time Limit	Days required to meet crit. (3 cons. days)	Supervisory Procedures
II	60 min.	6	Granted work-check requests
III	55 min.	25	Granted work-check requests
IV	50 min.	54*	Granted work-check requests
V	50 min.	9	Requests for work check not granted. Remained in aide station with periodic checks
VI	50 min.	15	Same as above with no periodic checks
VII	45 min.	12*	No work-check requests were made. No periodic checks
VIII	45 min.	30	Announcement of malingerers over loud-speaker system in observation booth
IX	45 min.	15	In observation booth but no announcement of malingerers
X	45 min.	12	In aide station, no work-check until time limit completed. No requests for work-check made

*Criterion not met.

Several Mimosa "C" girls had demonstrated that they could not be depended upon to perform work tasks satisfactorily. Over a period of many years, a variety of techniques had been applied to improve the girls in this respect, but none had been totally successful. Their deficiencies included refusing to work, working slowly, not being thorough or accurate, and being disrespectful to supervisors. Some of the girls worked well enough under close, direct supervision but not when supervision was relaxed. A highly systematic, highly contingent routine was developed in 1968-1969 to improve the girls' work skills and work attitudes. Each girl was given a schedule which included several on-grounds work assignments, each lasting from one-half hour to two hours. Individual assignment sheets were made which included a printed clock face showing the starting and stopping time for each job. By reading the clock faces, each girl became personally responsible for getting herself to and from each assignment on time. All supervisors were given a list of each girl's deficiencies and instructed to praise the girl and to sign the assignment sheet if the girl were punctual and engaged in no negative behaviors. If the girl displayed any undesirable behavior, she did not receive a signature from the supervisor. The working girls exchanged each signature for credit toward one of the three daily meals and a bed for the night. If in the time period preceding any meal a girl did not receive all the required signatures, she could be given an uninteresting tray or be required to sleep on the floor instead of in her bed. Extra signatures, or credits, could be earned on the job by displaying initiative or marked improvement in a deficiency area. Extra credits could be exchanged for money or for weekend privileges.

All girls have showed improvement since the system began, but perhaps for different reasons. One girl, for instance, found the routine so aversive that she promised to become a better worker if she could be removed from the system. She was removed from the system and did, in fact, become a better worker. Most girls, however, seem to simply come under the control of the contingencies established.

Work Incentive Experiment Mimosa "B" and "C" (ages 12-21)

Abstract

A study was conducted to determine the effects of programed music on modifying the production rate of 16 girls. The results indicated that preferred music functioned to increase the production rate of these subjects.

A study was conducted during 1968 to determine the effects of programed music as a method of modifying the production rate of 16 girls in a sheltered workshop environment. Music was programed individually to four groups of Ss wearing headphones while they performed a simple repetitive assembly task.

The findings indicated that preferred music functioned to motivate the Ss to increase productivity or maintain a consistent rate of production. During conditions of no music (silence) the production rate decreased. When music was arranged to follow the task immediately there was an increase in productivity as compared to the presentation of music unrelated to task production. During periods of silence there was no difference in productivity of Ss who had previously received music as a consequence for work task completion as compared to Ss who had received music independent of task completion. It was concluded that preferred music can be arranged in a workshop environment to motivate mentally retarded children while they perform repetitive and monotonous work tasks.

Business Women's Association Mimosa "B" and "C" (ages 12-21)

Abstract

The purpose of the Business Women's Association was to encourage a desire to work and to develop appropriate verbal responses and physical skills required for occupational placements. Methods of dealing with problems and becoming more efficient at work were discussed at weekly meetings.

In September 1968, an organization called the Business Women's Association (BWA) was begun on Mimosa "B". The purpose of the group approach was to encourage a desire to work and to develop appropriate verbal responses and physical skills required for occupational endeavors off the cottage. The number of members increased from 9 to 11 in three months. Admission to the BWA depended primarily on the staff's judgement which was based on the extent to which the girl cooperated with adults, the appropriate treatment of younger children, successful completion of tasks on the cottage, and overall obedient and desired social behavior.

Generally, the daily collection of data from the cottage work program, the "Good Girl" chart and nickel program, and the achievement chart program (points, tokens, and big events or community activities for obedience and/or initiative) aided the staff in selecting Ss for membership in the BWA.

The cottage work program trained custodial types of skills, i.e., sweeping, mopping, waxing, dusting, etc. Successful performance lead to similar tasks in areas off the cottage. Data from the "Good Girl" chart indicated the positive or negative reaction to adult directives in work situations and leisure time activities. Data from the achievement chart indicated the quantity of errands or transportation tasks performed by the Ss. The performance of an errand was worth 15 tokens and escorting a lower level resident to therapy area was worth 45 tokens. Big Events, which cost each S 500 tokens, increased the quantity of work performed. During a 12 week period in 1969, in which there were three big events about three weeks apart, the number of Ss performing errands steadily increased. (First week = four Ss, six errands; Last week = 25 Ss, 70 errands.) The number of transportation tasks increased from five Ss, six tasks during the first week to 13 Ss, 23 tasks during the 12th week.

The group continued to develop autonomy and cohesion since the beginning. The meetings, which took place in the living room area of the cottage, were designed to encourage each member to mention any problems at work. Group discussion followed concerning methods of dealing with problems and becoming more efficient at work.

Officers were elected, and a group decision was made to pay dues so that they might purchase a record player. Worker Pins were purchased, upon which each member's name was placed. Work cards were taken by the members to various off-cottage jobs and signed by a supervisor indicating "good" or "poor" work. Girls who maintained good work behavior were allowed to keep their pins.

As of July 1970, 20 girls from Mimosa "B" cottage work placements were included in the BWA.

The Business Women's Association formed on Mimosa "B" gave inspiration to forming a similar group for the working girls on Mimosa "C". The purpose and procedures were highly similar.

Pay-As-You-Go and Semiprivate Living Mimosa "C" (ages 16-21)

Selected girls who earned small amounts of money by working on the Hospital grounds and in the community were required to pay for the basic necessities of life. These girls also had the privilege and responsibility of sharing a semiprivate room. These systems represent ways of maintaining appropriate social behavior as well as serving to prepare girls for life in the community. These two programs are fully discussed separately under the Social Skills section of this report.

Occupational Training Programs

The other critical area of emphasis in occupational skills was the actual training of job task skills. Training programs which did not in some way contribute to employability were not undertaken. The major occupational training programs were housecleaning, sewing, ironing, and cooking. Two of these programs, sewing and ironing were originally designed to increase personal appearance, however, these skills also represent areas of employability and therefore, are discussed in this section.

Care of Personal Belongings Mimosa "A" (age 6-21)

Abstract

Fifteen of the 16 residents of Mimosa "A" did not keep such items as magazines, books, toys, and clothes neatly in their bed drawers. A training program including demonstration of proper drawer arrangement and reinforcement for neatly arranged drawers resulted. Twelve of the girls who did not take proper care of their bed drawers were doing so at the end of this study. Maintenance of the program was shifted to the cottage aide.

The maintenance of the personal belongings is a persistent institutional management problem. Fifteen of the 16 girls on Mimosa "A" did not keep such personal items as magazines, books, toys, and clothes neatly in their bed drawers. The purpose of this study was to designate the items appropriate for placement in bed drawers, and to train the girls to arrange those items in a neat manner.

The driteria for neat bed drawers were:

1) Folded clothes (one pair of pajamas, one bathrobe, one pair of jeans, one blouse);

2) One cardboard box for storage of personal letters and papers;

3) Shoes and slippers mated and placed together;

4) Personal toys arranged in an orderly fashion.

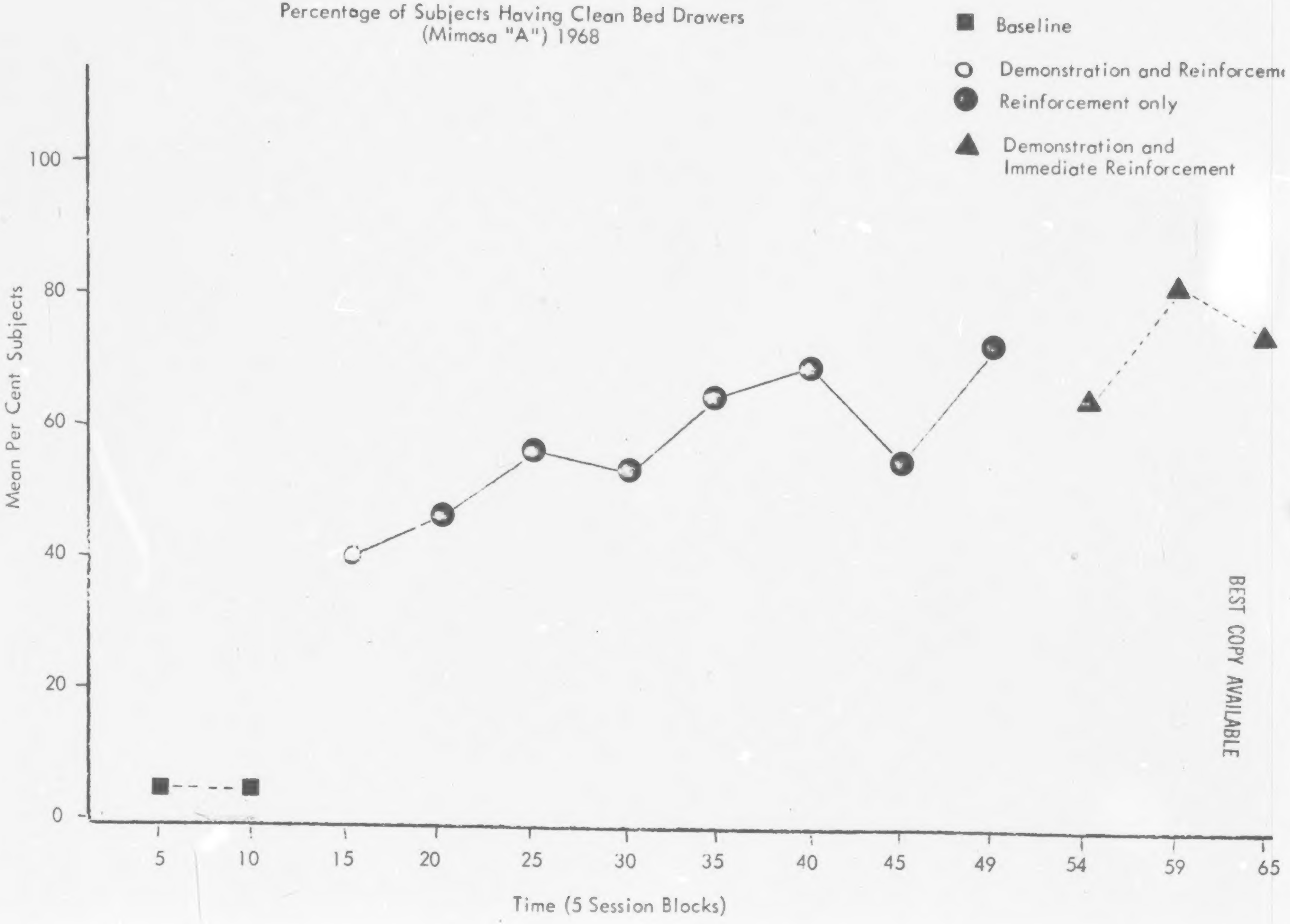
Each S had to meet all of the criteria in order to be scored "satisfactory." Data consisted of the percentage of Ss per day who had satisfactory bed drawers.

Phase I: Baseline (10 sessions)--During the baseline sessions each girl's bed drawer was checked without her knowledge. No training or reinforcement was given during the baseline sessions. Baseline data (Figure 48) showed that only one of the 15 girls managed to meet the criteria for a period of 10 sessions.

Phase II: Demonstration and Reinforcement (39 sessions)--This phase involved a procedure of demonstration and reinforcement with the demonstration fading out and ceasing by the end of the fifth training session. Figure 48 shows that six of the children were making satisfactory responses at that time. Reinforcement consisted of a gold star being placed on a chart for each child who had a satisfactory bed drawer. Later during the day, five tokens were given to each girl

Figure 48

Percentage of Subjects Having Clean Bed Drawers
(Mimosa "A") 1968



who earned a gold star. The procedure was maintained throughout this phase.

Figure 48 shows that the percentage of subjects with satisfactory arrangement of personal belongings continued to increase until 12 Ss were able to maintain this behavior by the end of the 49th session. Four Ss consistently had unsatisfactory bed drawers, so a change of procedure was required.

Phase III: Demonstration and Immediate Reinforcement (16 sessions)--The 50th session marked a change in reinforcement procedure, and also included a demonstration and fading condition for the four Ss who required it. Reinforcement was made more immediate by inspecting the drawer with each S present, and presenting five tokens with the star when criteria were met. If the performance of any of the four Ss was unsatisfactory, that S received a token for imitating specific movements of the research assistant. Immediacy of reinforcement was faded until five tokens were given only after all criteria were met. By the end of the 59th session, no demonstration was given.

After 65 sessions, care of personal belongings for 13 to 16 girls was maintained by the delivery of reinforcement alone. One specific objective of the project during the last year (1969-1970) was to transfer the maintainence of training programs to the aide on the cottage. The care of personal belongings is another example of this shift. Since February 1970, the bed drawer program has been maintained by the aide on Mimosa "A". The girls receive 10 tokens for having neat bed drawers. Any girl that does not pass the check is required to correct the inadequacy and be rechecked. No reinforcement is given for rechecks. Figure 49 contains the data for subjects having clean bed drawers during 1970.

Care of Personal Belongings Mimosa "B" (ages 12-16)

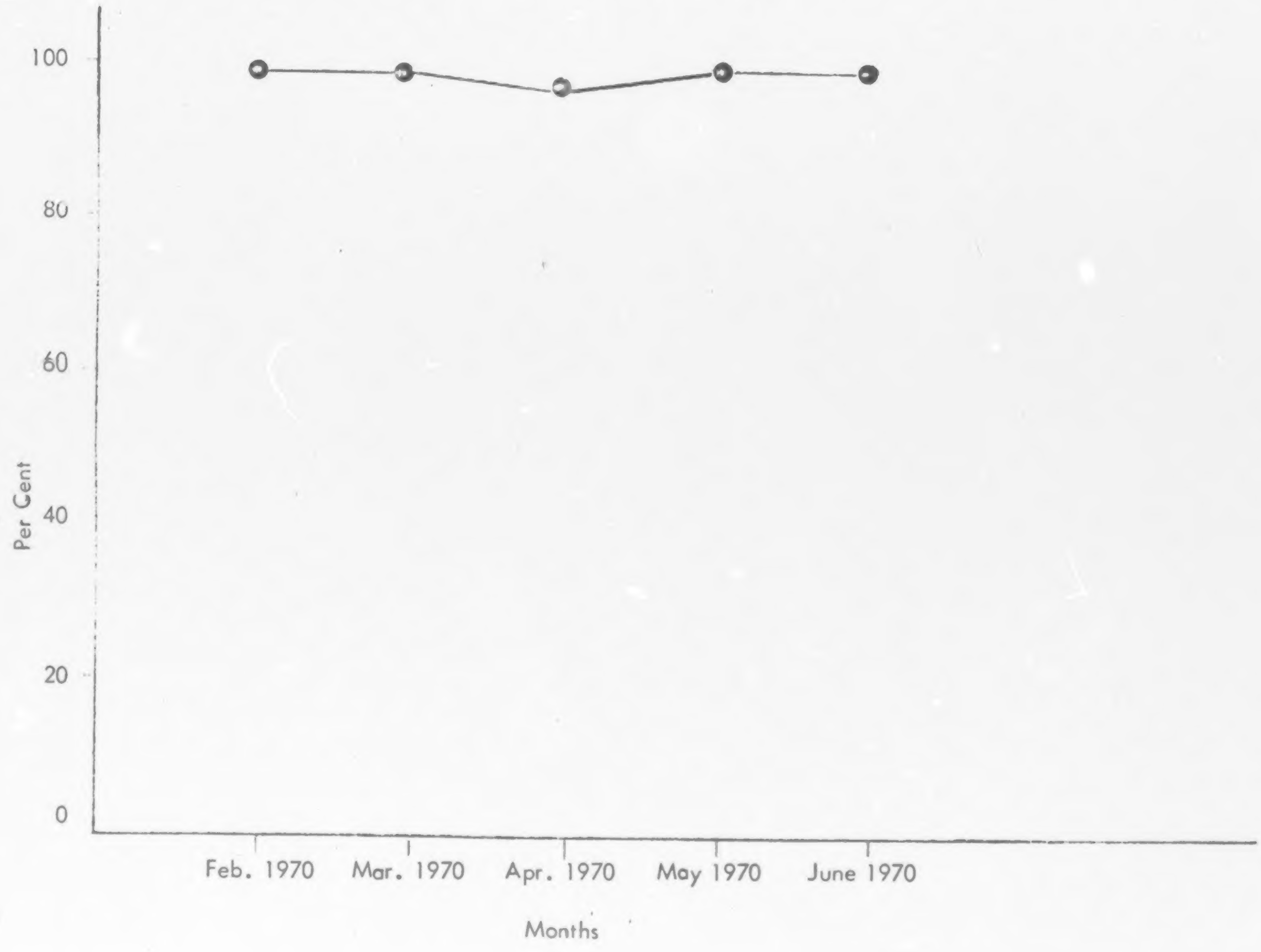
Abstract

The residents of Mimosa "B" had been trained to put their personal property into their bed drawers or clothing bins. Nevertheless, their performance had deteriorated. Four different reinforcement procedures were introduced. The most effective reinforcement procedure involved a special treat (such as going downtown for ice cream and candy) given on a variable session schedule to the girls whose bed drawers and clothing bins were appropriate.

The girls on Mimosa "B" had been trained to put their personal property in their bed drawers and clothing bins. Neat bed drawers

Figure 49

Percentage of Subjects Having Clean Bed Drawers
(Mimosa "A") 1969-70



and clothing bins were required for permission to go to the store. Nevertheless, the girls' performance had deteriorated. In 1967, four different reinforcement procedures were introduced. The psychiatric aide in charge of this program devised a training and reinforcement program requiring that certain items be stored neatly in the girls' dresser drawers, i.e., underwear, pajamas and bathrobe, house shoes, and grooming aides. All other clothing, games, papers, books, etc., were to be stored in the clothing bins.

Phase I: Daily inspection of both compartments for each S was conducted for 20 days. Ten tokens were presented for each compartment that met the criteria or 20 tokens if both compartments passed inspection. A bonus of five tokens was presented if the S met criteria on both compartments for two or more consecutive days.

Table 19 contains the percentage scores for 26 Ss during the four phases The group mean percentage score during Phase I was 46 per cent. Thus, the average member of the group met criteria about 9 out of 20 days.

Phase II: Daily inspection was conducted for 23 days. The reinforcement schedule was changed to 20 tokens for meeting criteria on both compartments or nothing if either was unsatisfactory.

Table 19 shows that this procedure produced an increased group mean percentage score (55 per cent), i.e., criteria for the group were met about 13 out of 23 days. This was a statistically significant increase when compared to the scores of Phase I.

Phase III: This phase was initiated in an attempt to improve the performance of the Ss. Even though there was a significant increase in Phase II when compared to Phase I, criteria were being met only about 55 per cent of the time. In Phase III, 10 tokens were withdrawn if either of the compartments did not pass inspection. Otherwise, the same schedule as used in Phase II was carried out for 14 days.

This procedure resulted in a group mean increase from 55 per cent (Phase II) to 58 per cent (Phase III). However, this increase was statistically nonsignificant.

Phase IV: This phase was the same as Phase III with the exception that treats were given on a variable-session interval to Ss who had met criteria for both compartments during the days between treats. The 130th session marked the beginning of free ice cream treats downtown for Ss who met the criteria on the same type of variable-session schedule as mentioned above.

The Friedman Test showed a significant difference in the percentage scores during the four treatment conditions. The Wilcoxon Test was used to determine the difference between the comparisons in Table 19.

Table 19

Number of Ss Changing During Four Reinforcement Conditions (Mimosa "B") 1967

Comparison	N	Increase	Same	Decrease	P
Phase I to Phase II	26	18	1	7	.005
Phase II to Phase III	26	16	1	9	N.S.
Phase III to Phase IV	26	19	0	7	.005
Phase I to Phase IV	26	21	1	4	.005

The results of the above study demonstrated that tokens and treats contingent upon proper care of personal belongings increased significantly the percentage of Ss meeting predetermined criteria. The group mean percentage score was 69 (N-29) and was being maintained.

The program during 1968 sought to further increase the number of days that personal belongings were stored properly in bed drawers and clothing bins, and to determine the extent to which unannounced check periods would affect the performance. There were five conditions:

Baseline A: Twelve unannounced observations of proper storage of personal belongings, no reinforcement.

Phase I: Twenty-one announced obsevations, 10 tokens contingent on proper clothing storage in bins, and 10 tokens contingent on proper storage of these personal items in bed drawers plus a bonus of five tokens if both met criteria.

Phase II (A): Twenty-one announced observations, 20 tokens contingent on both compartments meeting criteria, or nothing if either one did not pass.

Baseline (B): Seven unannounced observations, no reinforcement.

Phase II (B): Six unannounced observations, reinforcement identical to Phase II (A).

Measurement consisted of tabulating checkmarks for each S's daily performance on bed drawers, bins, and both bed drawers and bins. The total number of checkmarks was divided into the number which met criteria and a percentage score was computed. Table 20 contains the median percentage scores for the group during each of the five conditions for the three categories. Table 21 contains the group mean percentage scores for proper care of bed drawers, bins and both categories.

Table 20

Mean Percentage Scores of Subjects Having Both Clean Bins and Bed Drawers (Mimosa "B") 1968

S	Phase I	Phase II (A)	Baseline B	Phase II (B)
1	50	50	54	75
2	45	34	33	23
3	81	92	94	93
4	22	38	47	72
5	82	75	67	77
6	31	17	40	49
7	69	100	94	87
8	54	71	74	54
9	4	21	40	33
10	75	96	94	86
11	100	79	80	91
12	41	34	40	53
13	45	42	54	86
14	21	30	40	53
15	13	60	54	81
16	58	71	87	92
17	4	5	11	61
18	31	75	27	97
19	63	60	60	75
20	49	60	94	61
21	4	21	13	40
22	41	42	40	32
23	41	42	40	32
24	58	75	80	87
25	41	60	27	58
26	31	96	74	77
	C = 46	$\bar{X}$ = 55	$\bar{X}$ = 58	$\bar{X}$ = 69

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Table 21

Group Median Percentage Scores for Proper Care of Personal Belongings
(Mimosa "B") 1968

	A Baseline (A)	B Phase I	C Phase II (A)	D Baseline (B)	E Phase II (B)
Bed Drawers	12	75	81	25	64
Bins	42	87	84	25	81
Both bed drawers and bins	8	74	72	12	50

The Wilcoson test was used to test the statistical significance of the difference by comparing each S's scores between the various conditions in Table 22. The findings indicate that the percentage scores during reinforcement conditions exceeded the 1967 level (69 per cent). The number of S's changing in care of bed drawers for the various conditions appears in Table 22.

Table 22

Number of Subjects Changing in Care of Bed Drawers
(Mimosa "B") 1968

Comparison	N	Increase	Same	Decrease	P
Baseline (A) - Phase I	24	22	2	0	.005
Baseline (A) - Phase II	24	23	1	0	.005
Baseline (A) - Baseline (B)	20	7	8	5	N.S.
Baseline (A) - Phase II (A)	20	14	3	3	.005
Phase I - Phase II (A)	20	11	5	4	N.S.
Phase I - Baseline (B)	21	2	2	17	.005
Phase I - Phase II (B)	21	2	1	18	.005
Phase II (A) - Baseline (B)	21	2	1	18	.005
Phase II (A) - Phase II (B)	21	2	0	19	.005
Baseline (B) - Phase II (B)	27	16	5	6	.01

The first, second, and fourth comparisons indicated a significant increase from the unannounced and nonreinforcement conditions of Baseline A (mean = 12 per cent) to both announced conditions with reinforcement (Phase I = 75 per cent, Phase II (A) = 81 per cent), and in the unannounced conditions with reinforcement (Phase II (B) = 64 per cent). While the increase was not as great in the unannounced treatment conditions as in the announced conditions, there was an increase in performance from the first observation (Baseline A to Phase II (B). There was also an increase in performance between Baseline B to Phase II (B).

There was no significant difference between the two baseline conditions or the two announced reinforcement conditions (Phase I and Phase II (A). A comparison of both of the latter conditions with the last unannounced baseline and reinforcement conditions revealed a significant decrease in performance.

The significance of the difference in the comparisons concerning clothing storage in bins revealed relatively the same findings in Table 23.

Table 23

Number of Subjects Changing in Care of Clothing Bins
(Mimosa "B") 1968

Comparison	N	Increase	Same	Decrease	P
Baseline (A) - Phase I	24	22	1	1	.005
Baseline (A) - Phase II (A)	24	23	0	1	.005
Baseline (A) - Baseline (B)	20	9	5	6	N.S.
Baseline (A) - Phase II (B)	20	15	1	4	.01
Phase I - Phase II (A)	21	11	4	6	N.S.
Phase I - Baseline (B)	21	3	3	15	.01
Phase I - Phase II (B)	21	6	0	15	.005
Phase II (A) - Baseline (B)	22	3	3	16	.005
Phase II (A) - Phase II (B)	22	4	0	18	.005
Baseline (B) - Phase II (B)	27	20	2	5	.005

The change in number of Ss meeting criteria on bed drawers and bins shown in Table 24.

Table 24

Number of Subjects Changing in Care of Both Bed Drawers and Bins (Mimosa "B") 1968

Comparison	N	Increase	Same	Decrease	P
Baseline (A) - Phase I	24	23	1	0	.005
Baseline (A) - Phase II (A)	24	24	0	0	.005
Baseline (A) - Baseline (A)	20	7	9	4	N.S.
Baseline (A) - Phase II (B)	20	13	4	3	.005
Phase I - Phase II (A)	24	15	3	6	N.S.
Phase I - Baseline (B)	21	2	1	18	.005
Phase I - Phase II (B)	21	2	2	17	.005
Phase II (A) - Baseline (B)	21	2	0	19	.005
Phase II (A) - Phase II (B)	21	2	0	19	.005
Baseline (B) - Phase II (B)	27	17	5	5	.005

Figure 50 indicates the daily percentage of Ss meeting criteria on either bed drawers or bins, but not both. Figure 51 shows the daily percentage of Ss meeting criteria on both bed drawers and bins.

The performance improved under conditions of token reinforcement in both announced conditions. The unannounced reinforcement procedure improved performance significantly in comparison to both baseline conditions, but criterion performance decreased when compared to the previous announced procedure.

Housecleaning

Abstract

A task analysis was done to determine the components of housecleaning. Training included thoroughness, speed, initiative, and learning to read and follow key words on a check list. After training, work placements were found for graduates of the cottage training. The girls were first supervised by the research assistant, then supervision was shifted to a housewife. The final step was to place graduates in homes where there was little or no supervision.

Housecleaning training actually began on Mimosa "A". These girls (N = 13-16) were trained in cottage cleaning tasks such as sweeping, dusting, arranging toys and emptying trash. Cottage work was done in the morning after the breakfast meal. Each girl was

Figure 50

Daily Percentage of Girls Passing
Criteria on Bed Drawers and/or Bins
(Mimosa "B") 1968

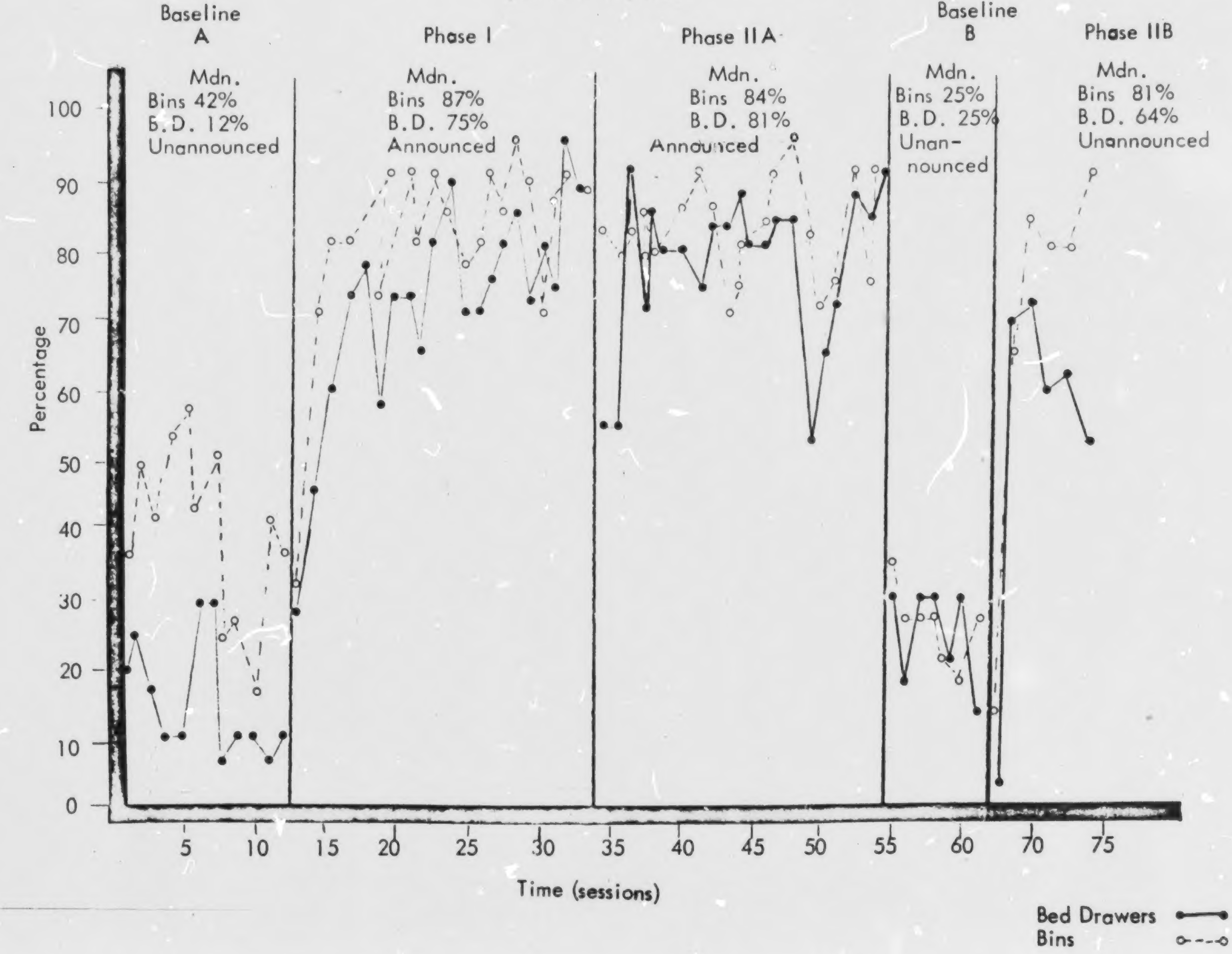
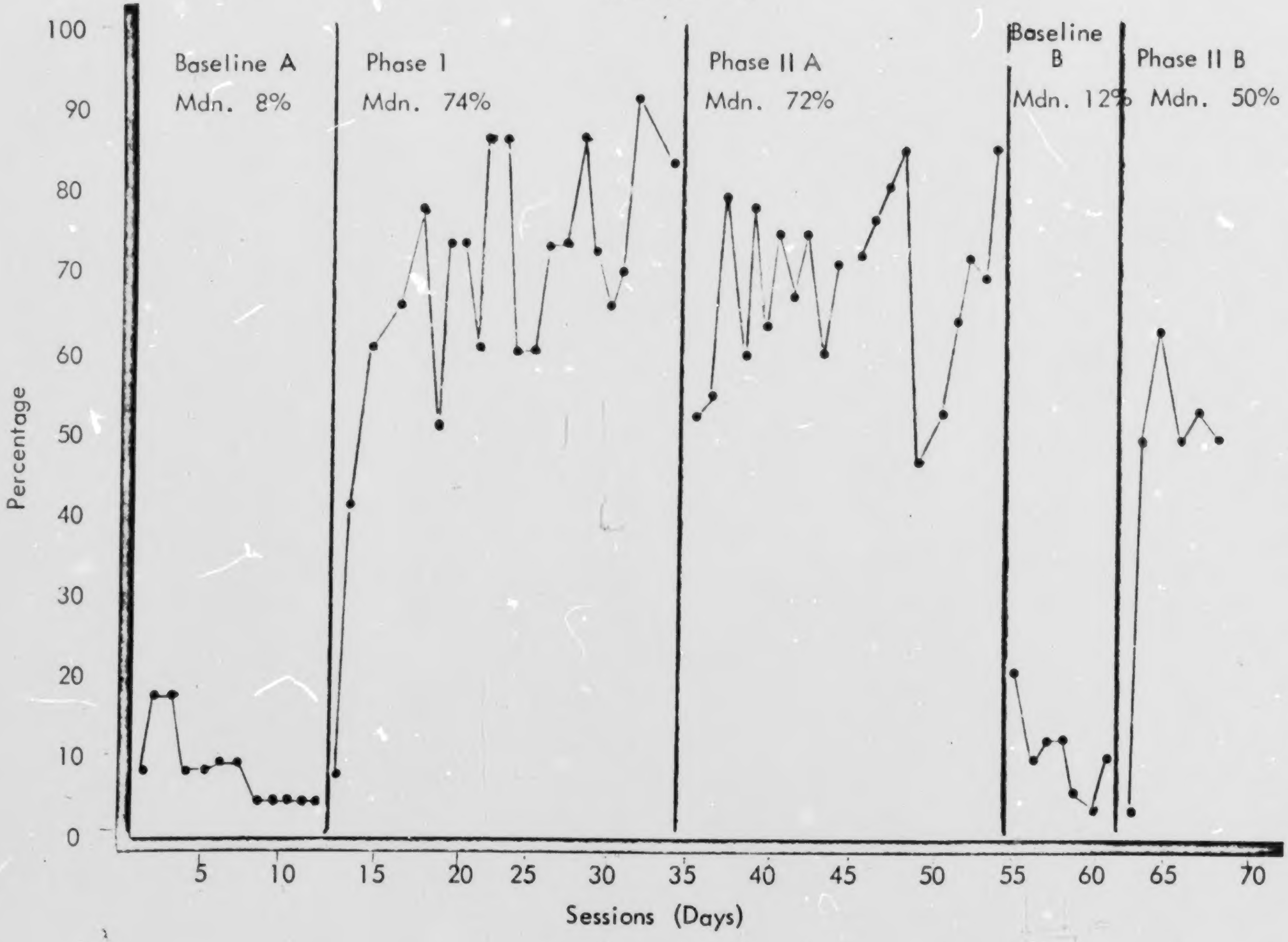


Figure 51

Daily Percentage of Girls Passing
Criteria on Bed Drawers and Bins
(Mimosa "B")



assigned to do tasks that were the least difficult. After six or eight weeks of training the girls were reassigned jobs so that experience was gained in all cottage jobs.

On Mimosa "B" the girls were required to work more independently, complete longer chains of job behaviors and had a specific time period for completion.

The housecleaning program carried out with Mimosa "C" girls was the most job-oriented of all the programs. It provided experience in an area of work that is highly probably for all Mimosa graduates.

The staff developed a program for improving the housecleaning skills of the girls on Mimosa "C". The first step in developing the program was a task analysis of housecleaning. This analysis indicated that housecleaning could be broken into a sequence of tasks. Once the sequence was determined, a housecleaning check list was developed for cleaning each specific room of a house. The total check list for all rooms consisted of 36 items (see Exhibit 28). In addition to the specific tasks involved, each girl was rated on the logical order in which she approached the tasks and on her quickness and quietness while working. Each of the six girls was given a pretest on housecleaning. Each of the girls was rated on the items included in the check list, however, the girls did the tasks without the benefit of the list.

The next phase involved systematic training which included learning to read and follow key words on the check list as well as special work on thoroughness, speed, and initiative. After completing this training program, the girls were given a posttest. The posttest procedure did not allow the girls to use the check list. The pretest and posttest data is shown in Table 25.

Table 25

Housecleaning Training Pre- and Posttest:
Per Cent Adequate Performance

Subject	Pretest	Posttest
Subject #1	14%	53%
Subject #2	27%	78%
Subject #3	38%	62%
Subject #4	20%	60%
Subject #5	33%	86%
Subject #6	4%	84%

Exhibit 28

Housecleaning Check List

Name ____________________

+ Attempted and correct
- Attempted but not correct
o Not attempted

Kitchen

1. All dishes cleared from table and cabinets
2. Table and cabinets washed
3. Food stored appropriately
4. Appliances washed if needed
   Stove
   Refrigerator
   Any other
5. Dishes washed and drained or dried
6. Window sills dusted
7. Wastebasket emptied
8. Floor swept and mopped if necessary
9. Worked quickly
10. Tasks done in logical order
11. Worked quietly

Living Area

1. Magazines straightened and toys picked up, etc.
2. Ash trays emptied and washed
3. Furniture dusted, moving any objects to dust under them
4. Baseboards dusted
5. Carpet vacuumed or floor dustmopped
6. Worked quickly
7. Tasks done in logical order
8. Worked quietly

Bathroom

1. Lavatory, toilet and bathtub cleaned
2. Shelves and window sills dusted
3. Baseboards dusted
4. Wastebasket emptied
5. Carpet vacuumed or floor dustmopped
6. Clean supply of towels
7. Worked quickly

Bedroom

1. Clean supply of linens
2. Bed made appropiately
3. Ashtrays emptied and washed
4. All furniture dusted

Exhibit 28 (cont.)

5. Baseboards dusted
6. Carpet vacuumed or floor dustmopped
7. Wastebasket emptied
8. Worked quickly
9. Tasks done in logical order
10. Worked quietly

After this initial training, each girl was assigned to a variety of work placements in the community under the supervision of a homemaker. Various placements were given so that the girls would learn to work under many types of supervisors in a variety of situations. The homemaker filled out a questionaire concerning the appropriateness of the girl's work behavior each day. If the housewife reported that the girl had done especially well in an area in which she usually had problems, the girl would be given extra pay by the project staff. Table 26 indicates the pre cent adequacy as judged by the homemakers. In general, Table 26 indicates that the girls improved, gradually reaching adequate performance.

Table 26

Housecleaning Community Placement Data
Per Cent Positive Ratings

	Worked Quickly	Worked Quietly	Worked Efficiently	Cooperative	Work Completed	Used Initiative	Followed Directives	Extra Pay
Housekeeper #1								
Oct.	91%	91%	82%	91%	91%	91%	91%	
Nov.	92%	100%	79%	100%	92%	92%	100%	
Dec.	90%	100%	100%	83%	83%	83%	100%	
Housekeeper #2								
Nov.	100%	100%	100%	100%	100%	100%	100%	
Dec.	100%	100%	100%	100%	100%	100%	100%	
Housekeeper #3								
Sept.	0%	100%	87%	87%	87%	0%	87%	0%
Oct.	64%	100%	91%	91%	91%	36%	91%	0%
Nov.	80%	100%	90%	90%	90%	90%	90%	30%
Dec.	100%	100%	100%	100%	100%	100%	100%	43%
Housekeeper #4								
Oct.	100%	100%	100%	100%	100%	100%	100%	0%
Nov.	100%	100%	100%	100%	100%	100%	100%	24%
Housekeeper #5								
Sept.	66%	66%	66%	66%	66%	66%	66%	0%
Oct.	100%	100%	100%	100%	100%	100%	100%	0%
Nov.	100%	100%	100%	100%	100%	100%	100%	20%
Housekeeper #6								
Sept.	26%	100%	100%	100%	100%	50%	100%	0%
Oct.	91%	100%	100%	100%	100%	100%	100%	0%

During 1969-1970 the same training procedures were followed. During this year there have been a total of 15 girls trained to independently clean house. Eight girls are still in some phase of the training sequence.

Sewing

Abstract

The project staff developed procedures for evaluating and training retarded girls to hand sew and machine sew. After initial success with hand sewing, girls were then placed in a machine sewing class. Significant gains were made by all Ss in each of the two programs.

Hand Sewing: Instruction in basic sewing was necessary from three points of view. First personal appearance could not be adequately maintained unless the girls learned to discriminate the need for small repairs and were able to perform the requisite skill. Secondly, being able to maintain one's own wardrobe is a requisite skill for eventual transition to the community. And thirdly, sewing is a skill that can be used in the employement market. The Mimosa sewing program was originally developed for the first two reasons. However, emphasis was placed on sewing as a skill for employment.

The first step in the sewing project was to evaluate each girl's initial level of performance. Evaluation data were taken as follows:

1. The girls were told to thread the needle and tie a knot in the end of the thread. One at a time, they showed the aide or research assistant their results.

2. They were then told to pick a button and sew it on a specific point on a piece of material. Appropriate color matching of thread to button, how the button was secured and the stitching on the underside of the material was checked.

3. The girls were then given a piece of muslin material (12" x 1½") and were told to stitch along a line drawn on the material. The aide or research assistant checked for threading of the needle, stitch size, straight line of stitching, and how securely the thread was placed in the material. Based on percentage of correct responses, the baseline observations indicated that training was most needed in the areas of threading a needle, tying, securing, and trimming a knot neatly, keeping the material smooth, and stitching in a straight line (see Table 27 for pre -pos-test percentage data). After the initial evaluation, some of the girls were trained three evenings a week in small group (see Exhibit 29 and 30 for the data sheets used for evaluation). The daytime aide then took the primary responsibility for training and follow-up projects. Each group received about four weeks of intensive training.

Instruction included: 1) sewing on buttons; 2) simple running stitch; 3) threading needle and knotting thread; 4) use of straight pins; 5) basting hem in place; and 6) hemstitching hem (see Appendix D for a complete description of the hand sewing program).

A skirt-shortening project was undertaken in which research assistants and aides pinned hems for the girls to sew. Hem work was also done on individual aprons, kitchen towels, and vanity scarves.

As a bonus to graduates of the basic sewing class, the aide taught the girls how to embroider. Some girls purchased material (with money earned from the program) to make cross-stitch tablecloths and aprons.

Table 27

Pre- and Posttest Percentages of
Correct Responses on Hand Sewing Test
for Entire Group and for Instructed Group

	Entire Group 23 girls		Instructed Group* (8 of 23 girls)	
	Pretest %	Posttest %	Pretest %	Posttest %
Needle Threading:				
Ends doubled or one long thread	86	100	62	100
Knot secure and trimmed	35	65	37	88
Knot tight with no loops	39	78	15	88
Button Sewing:				
Thread appropriate color	65	78	62	100
Button correctly placed	78	78	62	75
Button securely attached	91	100	75	75
Underside stitch small and uniform	17	43	0	50
No bunching of material	43	73	50	88
End of thread secured neatly	17	39	0	88
End of thread trimmed to 1/16"	17	39	0	88
Neat knot	22	39	0	15
Straight Stitching:				
Thread knotted	74	100	75	100
Stitch uniform in size	9	17	0	15
Stitches form straight line	30	22	15	37
End of thread neatly secured	13	34	0	50

*Eight girls completed programed instruction.

Exhibit 29

Data Sheet for Hand Sewing

Threading needle			Sewing on button								Sewing straight line				
Ends double or one long thread	Knot is secure and trimmed	Knot is tight with no loops	Thread approp. color	Button correctly placed	Button securely attached	Underside stitch small & uniform	No bunching of material	End of thread secured neatly	End of thread trimmed to 1/16"	Neat knot	Thread knotted	Stitch uniform in size	Stitches form straight line	End of thread neatly secured	Names

Exhibit 30

Data Sheet for Threading Needle, Knotting Thread, and Sewing on a Button

---

Name: ______________________________

Number of Attempts:	1	2	3	4	5	6	7	8
1. Choose thread matching color of button								
2. Cut a long enough piece to sew on the button								
3. Thread the needle								
4. Pull the thread through until ends are same length and even								
5. Make a knot using both ends of thread								
6. Put needle into wrong side of material and pull through								
7. Slip button over needle, thread into place. Hold with left thumb and forefinger								
8. Make 6 complete down-up stitches to hold button, needle always entering material at same points								
9. Make last stitch from right side of material, then cut the thread approx. 3" from the material								
10. Tie a double knot with the two ends of thread								
11. Trim thread ends next to material								
Date:								
Total:	x	x	x	x	x	x	x	x

+	Correct response
✓ +	Correct response with help
P ✓ +	Incorrect response prior to help. Correct response with help.
✓ −	Incorrect response made after help is given
✓ o	No response made after help is given

A project in making stuffed animals, yonks (funny and odd animals), mice, dogs, and bears was introduced to further encourage the girls to sew. Some of the girls made animals for younger children at the Hospital, brothers, sisters, parents, and for their own personal use as bed decorations.

During 1969-1970 hand sewing training was begun with 12 girls on Mimosa "B". This was part of the on-cottage training for the inservice aides of the Hospital. These aides were trained to teach the hand-sewing program and subsequently taught small groups of girls to sew.

Machine Sewing: After initial success with the hand-sewing project, several girls were instructed in the machine sewing project. A 16-item test was devised to measure each S's performance before and after the training program. During the testing procedure, each S was asked to sit at the sewing machine next to the E. The E instructed the S to perform each of the 16 items, and then recorded a plus or minus according to predetermined criteria (see Appendix E for a detailed description of the machine sewing program)).

The training program used the principle of imitation, i.e., the instructor provided a model of the appropriate response to be performed by the S, asked the S to perform the same response, and then responded to correct imitations with praise. The generalized reinforcer (marks on a card) was supplied intermittently, usually at the end of a learning sequence. If S failed to perform the required responses in a step, she was returned to the preceding step. The procedure was followed until the instructor considered the responses adequate.

The results of the training program were encouraging. Number of correct responses for the 16-item pre-/posttests is shown in Table 28.

Table 28

Number of Items Correct on the Sewing Program
Pretest and Posttest

Subject	Pretest	Posttest	Magnitude and Direction of Chance		
			Increase	Same	Decrease
1	5	13	8		
2	13	13		0	
3	1	14	13		
4	15	16	1		
5	10	14	4		
6	14	11			3
7	1	14	13		

Table 28 (cont.)

8	3	13	10		
9	14	11		3	
10	7	16	9		
11	8	14	6		
12	2	8	6		
13	6	13			
14	1	10	9		
	$\overline{X}$ = 7 (19%)	$\overline{X}$ = 13 (81%)	$\overline{X}$ = 7.8		$\overline{X}$ = 2

A comparison of the Ss' scores in Table 28 shows an increase in the number of correct items in the posttest. The Ss performed a mean of seven (19 per cent) items correctly during the pretest, and a mean of 13 (81per cent) during the posttest. Eleven Ss increased their scores by a mean of 7.8 items, while one S remained the same and two Ss decreased by a mean of two items. The probability of the changes occurring by chance was .005 according to the Wilcoxon Test. In addition, the posttest results indicated that: 1) all Ss sat in the chair correctly, threaded the machine head, threaded the bobbin, controlled machine deceleration, and operated the machine in reverse; 2) 13 Ss matched thread color to material, adjusted material correctly, controlled machine acceleration, and operated the thread cutter; 3) 11 Ss wound the bobbin and put all equipment away; and 4) nine Ss sewed a straight line, sewed a curved line, and stopped the machine (see Table 29).

Table 29

Number of Subjects Performing Correctly During the Sewing Program Pretest and Posttest

Performance Measure	Pretest N correct	Posttest N correct
1. Sits in chair	10	14
2. Matches thread color to material	10	13
3. Threads machine head	4	14
4. Threads bobbin	5	14
5. Winds bobbin	5	11
6. Adjusts material	8	14
7. Controls acceleration	7	13
8. Controls deceleration	8	14
9. Guides material with both hands	8	14
10. Sews a straight line	5	9
11. Sews a curved line	4	9
12. Turns a corner	4	13
13. Operates thread cutter	4	13
14. Operates machine in reverse	4	14
15. Stops the machine	6	9
16. Puts all equipment away	8	11

During 1967-1968 the Ss made 30 items of apparel. Everyone constructed a sleeveless or long-sleeved blouse. Four Ss made skirts, two Ss made dresses, and one resident made a child's jumper and pants set.

During 1968-1969, 14 Ss completed a total of 54 garments. The garments included such items as cotton blouses, dresses, skirts, and shorts. Difficult materials such as bonded knits were used by some of the more proficient students.

During 1969-1970 the girls completed a total of 45 items. These items included drapes for the cottage, pajamas, dresses, slacks, shorts, suits and blouses.

Results of the pre-posttesting indicated that the most difficult parts of the program were those requiring spatial-relations, such as laying out a pattern and assembling the cut pieces for construction. None of the subjects became independent in these skills although some required only an occassional check. In the mechanical skills of cutting, machine sewing, and stitching, however, all of the girls attained a satisfactory degree of proficiency. Nineteen Ss were given machine sewing pre-posttests. There was an average increase of 48 per cent correct responses shown on the posttest. The finished products were both attractive and well fitted.

Ironing

Abstract

Baseline data from personal appearance indicated that one reason for poor appearance was poorly ironed clothes. After analyzing the task, a training program was written for ironing. A pre-posttest was used to evaluate the girls' initial and after training performance. Expansions were made in the original program to include men's clothing. With these additions, ironing became an important occupational skill.

Ironing clothes is an important skill for girls to learn for two reasons. First, properly pressed clothing contributes to their own personal appearance, and second, ironing is an important occupational skill. When baseline data on personal appearances were gathered in 1966 on Mimosa "C" it was obvious that one reason for poor personal appearance was clothing which had been poorly ironed. For these reasons a program of instruction in ironing was begun. Two research assistants were assigned to work individually with the girls three times per week to teach them how to iron their own clothing. The following criteria were used.

I. Preparation of equipment
   - A. Iron pre-heated
   - B. Temperature control accurately set
   - C. Iron in appropriate position when not in use
   - D. Garment dampened (if necessary)
   - E. Garment appropriately placed on ironing board
   - F. Begins with appropriate position of article. If not, where?
   - G. Use of iron: Direction of strokes
     - Speed of strokes
     - Organized motions
     - Use of point of iron
     - Leaves smooth tracks
     - Smooth motions
     - Iron remains on garment for complete strokes
   - H. Iron turned to off position
   - I. Iron unplugged
   - J. Garment put away in appropriate place
   - K. Attends to task instead of distractions
   - L. Works at a steady rate
   - M. Works with appropriate speed
   - N. Proceeds in organized step by step process to completion of finished product
   - O. Relaxed movements with no obvious tension or anxiety

II. Clothing
   - A. Small flat article
     - 1. Free of all creases and wrinkles
     - 2. Uniformly folded with edges and corners matching
   - B. Larger flat article
     - 1. Same as in 1 and 2 of II A
   - C. Straight A-line skirts
     - 1. Free of all wrinkles and creases
     - 2. Waistband and kick pleat ironed smoothly
     - 3. Garment hung appropriately
   - D. Gathered Skirt
     - 1. Free of all wrinkles and creases
     - 2. Gathers ironed thoroughly into waistband seam
     - 3. Waistband ironed smoothly
     - 4. Garment hung appropriately
   - E. Sleeveless Blouse
     - 1. Free of all wrinkles and creases
     - 2. Darts ironed smoothly
     - 3. If blouse has collar, collar lies smoothly
     - 4. Garment hung appropriately
   - F. Simple Blouse with sleeves
     - 1. Same as 1, 2, and 3 of II, E
     - 2. Special attention to smoothly ironed shoulder seams, where sleeves join body

    3. Sleeve creased appropriately
    4. Garment hung appropriately
G. Dress
    1. Same as 1, 2, and 3, of II, E
    2. Skirt - same criteria as for straight or gathered skirt
    3. If pleated skirt, all pleats smoothly and accurately pressed

See Appendix F for detailed description of ironing procedure.

In 1967-1968 an ironing test was administered to each S before and after the training program see Exhibit 31 for test used). The test was a direct observation and recording of the Ss ironing performance on six classes of materials, i.e., handerkerchief, pillow case, straight skirt, gathered skirt, blouse, and dress. Table 30 shows the percentage of correct items for each S during the pretest and posttest.

An analysis of the posttest data revealed that 12 Ss had increased their percentage scores, two Ss remained the same, (100 and 90 per cent respectively) compared to the pretest scores. The Wilcoxon Test was used, and the probability of obtaining such a difference by chance was .01 t = 22.

It was then decided, that the program should be expanded to include ironing for pay for persons living in the community. To accomplish this, it was necessary to add two classes of garments to the training program; slacks or jeans, and men's shirts.

Test results are available for six girls who were trained using the expanded training program and the more demanding criteria. The results shown below indicate satisfactory performance by all girls.

	Pretest	Posttest
Subject 1	28%	80%
Subject 2	24%	96%
Subject 3	20%	90%
Subject 4	20%	86%
Subject 5	53%	83%
Subject 6	47%	100%

From January 1969 to July 1969 a total of 17 girls participated in the expanded program. They each ironed an average of 116 garments per month. Earning five cents for each ironed piece, they earned an average of $5.80 per month.

By December, 1969 all of the girls on Mimosa "C" had been trained to iron and were required to iron all of their personal clothing. Eight girls have ironed for pay during this last year. They have earned an average of $8.00 per month.

Exhibit 31

Test Used for Ironing Program for Subjects

Handkerchief	Pillow Case	Straight Skirt	Gathered Skirt	Blouse	Dress
Edges smooth	Placed correctly	Placed correctly	Placed correctly	Placed correctly	Placed correctly
Method correct	Edges smooth	Zipper ironed	Zipper ironed	Method correct	Method correct
Ironed completely	Method correct	Method correct	Method correct	Seams ironed smooth	Seams ironed correctly
No wrinkles	Ironed completely	Pleat ironed	Gathers ironed	No wrinkles or creases	No wrinkles or creases
Folded correctly	No wrinkles	Waist band ironed	Waist band ironed		
		No wrinkles	No wrinkles or creases		

Table 30

Percentage Scores for Ironing
Pretest and Posttest

Subject	Per cent Correct Pretest	Posttest
1	97	80
2	53	93
3	43	70
4	77	80
5	100	100
6	63	93
7	73	87
8	70	83
9	77	97
10	50	67
11	93	77
12	90	90
13	67	77
14	87	83
15	90	77
16	43	90
17	40	63
18	37	87

Cooking

Abstract

The purposes of a cooking training program were to instruct girls in: 1) etiquette; 2) table setting; 3) care of kitchen; 4) planning of menus; 5) cooking simple meals, and 6) safety. Training took place in the kitchen and dining area of the cottage.

During 1967, a breakfast time cooking project was conducted with two to four girls each day. A dinner time project was conducted for a different group of girls and included a wider variety of training. The goals of these programs were to instruct the girls in: 1) etiquette, 2) table setting, 3) care of kitchen equipment, 4) planning of menus, 5) cooking simple meals, and 6) safety precautions.

During 1967-1968, four girls graduated from the cooking project. They were taught to: 1) come to the table appropriately dressed, with hands clean, and hair arranged; 2) stand behind the chair until everyone was present; 3) eat only after all were served and the hostess (the instructor) began to eat; 4) engage only in conversation which was pleasant and softly spoken; 5) pass food dishes using the left hand to lift the dish and to transfer it to the right hand, always passing the dish to the left; 6) sit straight in the chair with head up, both feet on the floor, and hands in the lap when not in use; and 7) keep their elbows off the table (see Exhibit 32).

Exhibit 32

Correct Table Setting

Arrangement of Utensils

1. The forks are laid, tines up, at the left of each plate with handles toward the edge of the table.
2. The dessert fork is laid nearest the plate.
3. The salad fork is laid to the left of the dessert fork.
4. The meat knife is laid at the right of the place setting and nearest the plate.
5. The spoons are laid to the right of the knife.
6. The dessert spoon is laid between the knife and the teaspoon.
7. The napkin is placed to the left of the fork.
8. The water glass is placed above the meat knife and any other glass or cup is placed slightly to the right of the water glass.
9. The salad plate is placed to the left of the napkin.

Because the girls were experiencing difficulty in setting the table, the research assistant diagrammed a correctly set table. This was presented to the girls and placed on the cottage for future reference. After the table had been set correctly serveral times with the aid of the chart, it was removed. A second chart replaced it on which two utensils and the napkin were omitted. After learning to set the table with no errors from this chart, a third chart was used. The added omissions on the third chart were the coffee cup, the glass and the salad plate. Table setting with no errors under these conditions led to the requirement that they set the table without a chart.

No special procedures were needed to teach the following:

1. Space left above the hostess' plate for the meat platter.

2. The carving fork placed to the left of the platter with the knife resting to the right.

3. Hotpads used for each hot dish and placed in the center of the table.

4. Salt and pepper shakers placed on the table where they may be reached by someone who can begin to pass them.

Each girl was trained to prepare enough food for the number of people to be served. All left-overs were used in the next menu and the concept of well-balanced meals was emphasized.

Other concepts which were taught were:

1. Washing hands before beginning to prepare the meal.

2. Washing all foods before placing in the refrigerator.

3. Keeping all dishes and equipment clean.

4. Using hotpad holders on both hands when placing something in the oven or removing things from the oven.

5. Unplugging the electric mixer before touching the beaters.

6. Passing knives with the handle pointing to the other person.

7. Never leaving a knife in dish water.

The session was completed when each girl had acceptable table manners, and could set the table correctly, take proper care of kitchen equipment, plan economical menus, and use safety precautions in cooking.

Individual Problems

The general approach for training group occupational skills has proven to be adequate for most girls. However, it is often necessary to devise specific techniques to solve special problems. The following programs describe techniques used during the project with individual problems in the area of occupational skills.

Modification of Two Subjects' Work Behavior

Abstract

This special problem dealt with the modification of time spent completing a work task. Specific contingencies were arranged for completion of the task in a shorter period. After two weeks, the subjects consistently completed their work tasks in the required time, and the subjects maintained the behaviors.

Two girls on Mimosa "B" were taking too long to complete their work assignments. Observation revealed that this problem existed not because of slowness in performing the routines, but rather not continuing the tasks to completion. Their job was cleaning the dayroom of the cottage, which consisted of dusting, mopping and buffing the floor three times a week.

Specific contingencies were arranged for completion of the tasks in a shorter period of time. Each day when the Ss reported for the work assignment, they watched while the aide set the hands of a large time-clock. The clock was constructed to operate backwards for periods of time ranging from one minute to 12 hours. The period of time selected for this experiment was one hour. The clock presented an audible signal when it had timed itself out. If the two Ss had not completed their work in time, they were removed from the job situation and two other girls were selected to complete the task. An added contingency was that the two experimental Ss had to pay the volunteers tokens for completing their job. At the end of two weeks, the two Ss consistently completed their work tasks in the required time. Experimental controls were faded, and the Ss maintained the behavior in the absence of extra tokens or the time-clock.

An important note is that for the Ss to complete the work on time, it became necessary for them to learn to cooperate with each other in the accomplishment of a task.

Modification of an Individual Subject's Work Behavior

Abstract

This particular problem dealt with one resident who disrupted other residents during work period. The procedures used to modify this behavior consisted of reducing the time limit for completion of job for this subject. The procedures were terminated after the behavior stabilized.

During the work period, one resident of Mimosa "B" was assigned to clean the cottage bathroom. However, she would not complete her work successfully or she took too much time to complete the task. Also, she was observed moving about disturbing peers who were engaged in constructive activities.

A 30-minute time limit (reduced gradually to 15 minutes) was set for completion of the bathroom work routine. The criteria for performance were: 1) mopping the floor; 2) cleaning five sinks with cleanser; 3) removing soap from the shower; 4) cleaning the bathroom mirror; and 5) taking three laundry bags to the entrance of the cottage. Each evening, when the S was to begin this work assignment, the aide set the hands of a large time-clock for a predetermined time (see phases).

Phase I - 35 min. allowed
Phase II - 25 min. allowed
Phase III - 20 min. allowed
Phase IV - 15 min. allowed

If the S finished within the time limit and the work reached the criteria outlined by the aide, she was paid tokens and was praised for completing the work quickly. If she did not finish before the buzzer sounded, no tokens were given. The time limit was gradually decreased until the S could complete the work within a 15-minute limit.

The results, presented in Figure 52, indicate that the S completed the task within the predetermined time limit for all sessions, except one. The procedures were terminated after the ninth day, because the behavior had stabilized within the time limit and was completed according to the criteria.

Individual Advanced Cooking Project

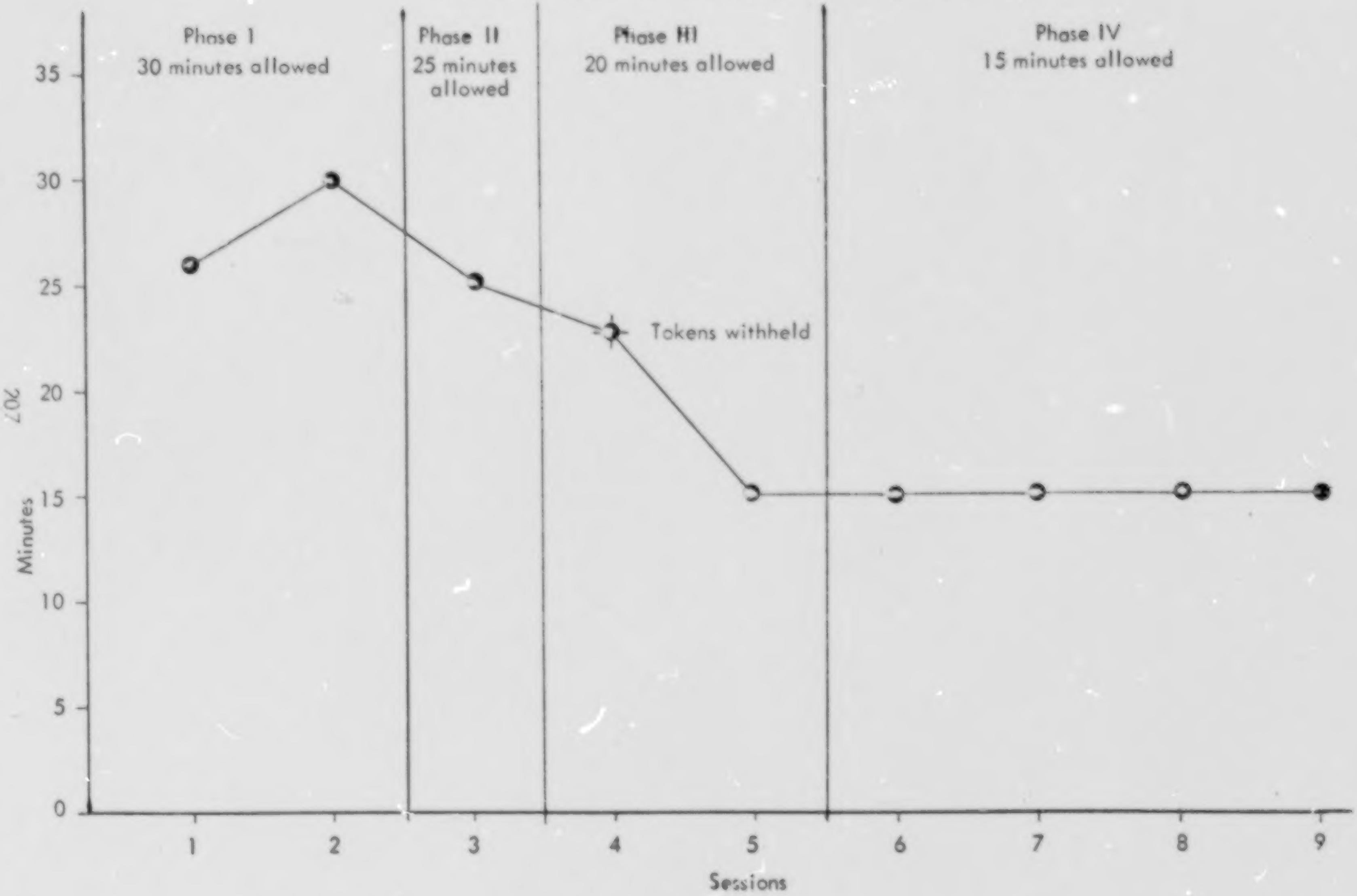
Abstract

This subject had done well in the group cooking program, but was not considered ready to assume responsibility of planning and preparing all her meals without assistance. Special training was undertaken to facilitate this goal. After training, the subject could successfully prepare foods, had appropriate table manners, could wash dishes, and clean the kitchen area. Difficulty remained in the area of reading and preparing a simple recipe.

For one of the girls who had been trained to live and work outside the institution, a more intensive project was carried out. This S had done well in the group cooking project, but was not considered ready to

Figure 52

The Modification of an Individual Subject's Work Behavior



assume responsibility of planning and preparing all her own meals without help. To facilitate this goal, one research assistant provided special training in her own home. Each evening the girl went to the research assistant's house, prepared and ate a meal. At first, supervision was quite close. However, at the end of training, she only required occasional assistance.

The assistant and girl planned a weekly menu from which a grocery list was compiled. When preparing the weekly menu, the S also had to plan a meal to be prepared from left-overs. The grocery list was written by the girl with the help of the assistant. Then the girl was taken shopping at a store which was near her future residence. She found the needed items, making choices based upon price and quality. The research assistant gradually gave less and less help until the S was selecting and purchasing items without assistance.

Cooking instruction was broken into breakfast, dinner, and supper. Approximately two weeks were spent on each part. After receiving help with the first menu, the girl prepared her own menu, wrote a grocery list from the menu, and wrote recipes for the foods needed.

Supper seemed to be the easiest meal to prepare; therefore, this was the first part of the training. The first time a meal was prepared (sandwich, soup, grapes, and milk) the assistant helped the S step-by-step. As the soup had to be heated, the S was instructed to read the instructions on the can. Help was needed in reading and interpreting instructions. The child pointed to the words as she read, was corrected if necessary, and then reread the instructions with as little help as possible. The research assistant then role-played the entire procedure of preparing soup, after which the girl prepared the food while the assistant watched and made corrections.

At the start of the project, the S was slow in preparing and finishing the meal. Due to the amount of time available for the session each night, a time limit had to be set. The time limit allowed was 40 minutes in which to prepare, eat, and clean up the kitchen area. If the S was not finished and ready to go back to the cottage within this time, she had to pay 30 cottage privilege points. However, if the S finished in time, 30 privilege points and much social reinforcement were paid to the S. After paying twice for unfinished work, she began finishing within the allotted time.

The typical procedures followed in the individual instruction were:

1) Read instructions or recipe.
2) Get out necessary utensils and food items (pan, spoon, milk).
3) Place pan on stove.
4) Open can, mix foods together, or wash, peel and/or dice foods.
5) By reading instructions, place items in the pan when necessary.
6) Turn on heat (electric or gas).
7) Look at clock and determine when food will be finished.

8) Set the table and prepare items which take less time.
9) Check food cooking.
10) Drain, pour and/or place food in a serving bowl (add lid if needed) and then place on the table.
11) Have research assistant check the table setting.
12) Upon completion of meal, wash and dry all dishes used.
13) Place left-overs in containers so they can be used in future meals.
14) Have research assistant check the kitchen to determine if it is properly cleaned.

When a food item appeared for the second time on the menu, the girl prepared it without assistance. However, if a recipe was necessary, the S was required to read it to the assistant and indicate which measuring devices (½ C., ¼ tsp.) were needed.

The same procedure was followed in learning to cook all other foods. Because of the time element involved, some items (jello, cookies, etc.) were prepared a night in advance, and were served or baked the following day. After each meal, any reasonable amount of food left was stored in the refrigerator. After several days, the S was able to prepare a supper from these items.

Safety in the kitchen was emphasized, especially in the use and handling of the stove. First-aid procedures for burns were described to S.

The girl can now successfully prepare the items listed (see Table 31) without assistance, has appropriate table manners, can wash dishes, and clean the kitchen area. However, she can not read or prepare a simple recipe without difficulty.

Table 31

Foods the Subject in the Advanced Cooking Project Can Independently Prepare

---

Breakfast
- Pancakes (recipe)
- Eggs (fried and scrambled)
- Cereal (boxed)
- Oatmeal (recipe)
- Bacon
- Orange juice (frozen and with a recipe)
- French toast (recipe)
- Toast

Dinner
- Stew
- Liver
- Ground beef (hamburger patties with cheese)
- Chili (canned)
- Meat loaf
- Fish sticks (boxed)
- Ham
- Tenderized steaks
- Potatoes (boiled and fried)
- Instant potatoes
- Carrots (cooked)
- Canned vegetables (beets, corn, green beans, peas & Pork 'n Beans)
- Tossed salad

Supper
- Soup (canned)
- Bologna
- Cheese (sandwiches - plain and grilled)
- Left-overs from other meals

Desserts
- Pudding (boxed)
- Cake (boxed)
- Cookies (recipes for sugar, chocolate and peanut butter)
- Whip and Chill
- Jello

Drinks
- Cocoa
- Coffee

EDUCATIONAL SKILLS

Methods and materials for the education of mentally retarded persons have been developed primarily for use with an educable level (IQ 50-75) population. Since the subjects on Mimosa Cottage are of a lower intellectual level (IQ 25-55), it was necessary to develop programed courses of instruction that were suited to their ability and readiness. In addition, several programs of a readiness nature were developed because Mimosa subjects were not capable of performing in subject matter areas without such preparation. Other programs have been designed by the project staff because Mimosa children could not progress in commercially available programs.

The educational program of the project took two general directions, one for older girls who were good prospects for work placement in the community and the other for those of intermediate age (10-15 years). The first program was designed to provide skills needed to adequately function in the community at some foreseeable date in the future. The skills included reading (i.e., reading directions, simple menus, food labels, etc.), time-telling, and change-making. For the girls of intermediate age, a readiness program was designed to provide concepts, experiences, and pre-academic skills necessary for better academic achievement.

Reading Program

Abstract

The Rainier Reading Program and the Listen, Mark, and Say Program were used to teach a sight vocabulary and elementary reading. Analysis of the data indicated that the subjects made significant gains.

Rainier Reading Program: The reading program was based on the sight vocabulary reading program, designed for the Programed Learning Classroom Research Project, Rainier State School. During 1966-1967, 16 girls took part in the initial phases of the reading program. These subjects ranged in age from 12 to 20 years, and in IQ scores from 21 to 89 (Peabody Picture Vocabulary Test). Excluding the IQ of 89, which was for a girl from a higher level cottage, the mean IQ for the group was 37. The IQ's and chronological ages of the Ss are presented in Table 32 and Figure 53.

The program consisted of the following phases: 1) A test of discrimination ability was administered to determine if the girls had the prerequisite skills required for success in the program; 2) those who scored too low on the discrimination test were given the prereading program, which was designed to teach the skills necessary for success in

Table 32

Individual Per Cent Error Rates on Pre- and Posttests of Reading Program

(Presented below are the chronological ages (CA), IQ scores from the Peabody Picture Vocabulary Test, and performance records for Discrimination Tests, Prereading Program, and Reading sets completed by the Ss. All performance scores are presented in per cent error figures.)

S	CA yr-mo	IQ	Discrimination Tests		Prereading* Post		Unit 0 Sets 1-10		Unit 1 Sets 11-20		Unit 2 Sets 21-30	
			Letter	Word	Letter	Word	Pre	Post	Pre	Post	Pre	Post
1	21-3	39	0%	25%			40%	0%				
2	14-2	27	17	13			100	20	90	50		
3	15-4	21	4	4			100	10	100	60		
5	16-9	32	4	13			100	20	100	60		
6	16-3	34	0	0			30	20	100	60		
7	13-4	40	13	38			90	20	100	30	100	20
8	14-4	39	13	21	4	4	100	30	100	0		
9	12-5	57	8	46	4	25	100	0	100	20		
11	12-11	31	4	4			60	10	70	30	80	10
12	15-7	41	8	13			100	20	100	20		
14	13-11	32	0	13			100	0	100	30	90	10
16	15-8	89	8	8			80	0	100	20	90	10

*The Prereading Program was administered to Ss whose per cent error on either Discrimination Test was above 10. As can be seen above, six Ss made above the per cent criterion and were not given the Prereading Program. This was because the teacher had not been informed of this criterion.

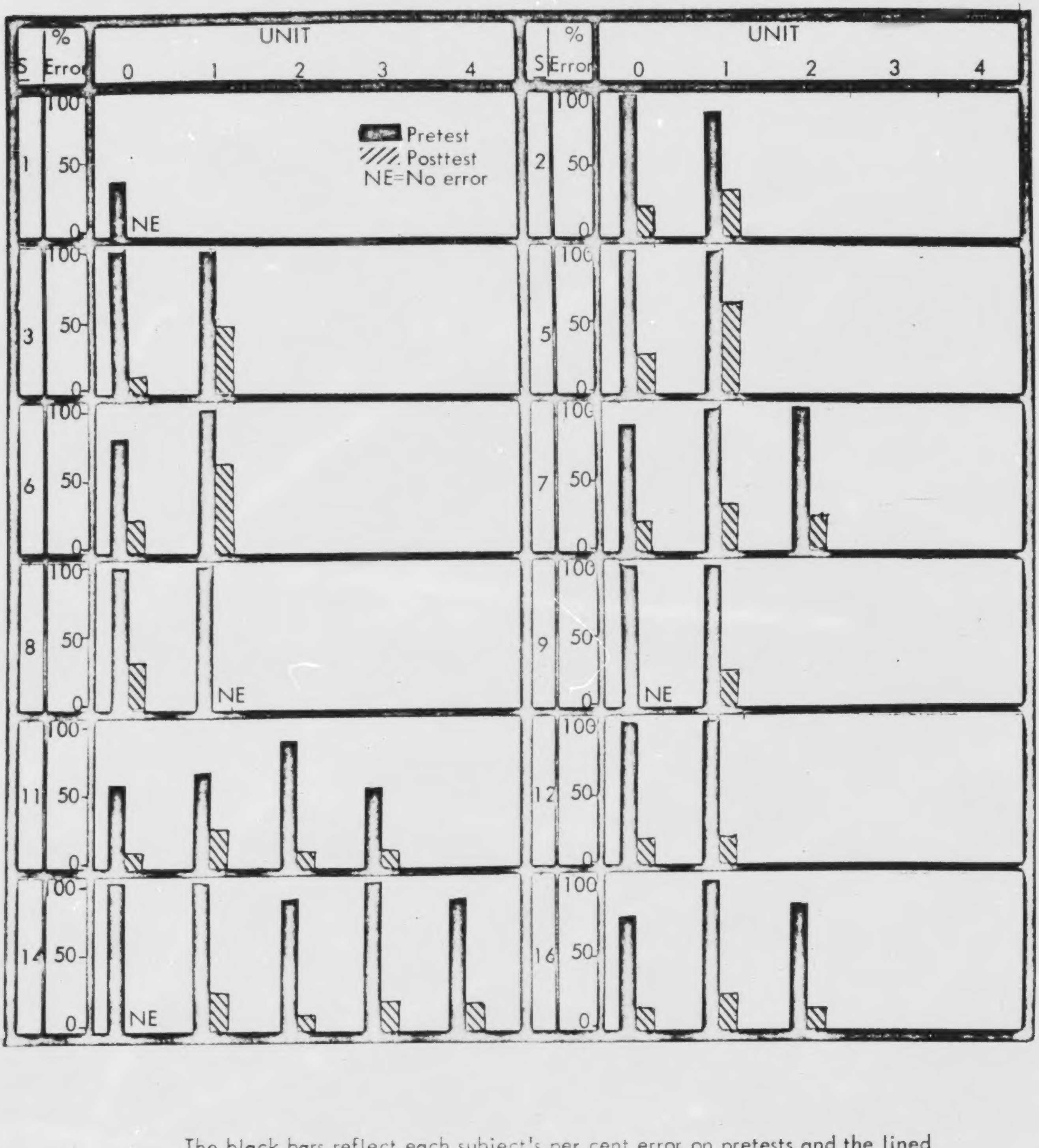
Table 32 (cont.)

Individual Per Cent Error Rates on Pre- and Posttests of Reading Program

S	CA yr.-mo.	IQ	Unit 3 Sets 31 - 40		Unit 4 Sets 41 - 50		Unit 5 Sets 51 - 60	
			Pre	Post	Pre	Post	Pre	Post
1	20-3	38						
2	14-2	27						
3	15-4	21						
5	16-9	32						
6	16-3	34						
7	13-4	40						
8	14-4	39						
9	12-5	57						
11	12-11	31	60	10				
12	15-7	41						
14	13-11	32	100	20	90	20		
16	15-8	89						

Figure 53

Comparisons of Individual Per Cent Error Rates on Pre-and Posttests of the Reading Program



The black bars reflect each subject's per cent error on pretests and the lined bars reflect her per cent error on corresponding posttests. This yields pre- and posttest comparisons for each unit of 10 words in the program.

the units of reading instruction; 3) the units of instruction consisted of 10 sets which introduced one new word per set. The sets were given at the rate of one per day, and were presented in a Min/Max teaching machine; and 4) reading tasks designed to check comprehension and generalization accompanied each set. An example of these checks was placing a series of objects on a table among which were a small green chicken and a box. The child's instructions were, "Put the little green chicken in the box." In addition to the reading sets and comprehension tasks, the program included remedial sets and record forms.

Before beginning the reading program, the Ss were given letter and word discrimination tests (24 items each) to determine matching ability in a three-choice, match-to-sample task. To proceed to the reading sets, an S could have no more than a 10 per cent error rate on each of the discrimination tests. If the per cent error for these tests was above ten, the prereading sets were administered.

The purpose of the prereading sets was to teach those matching skills prerequisite for success in the reading sets. These nine prereading sets consisted of match-to-sample items. The first set required color matching; the second, matching pictures of meaningful objects (cats, balls, birds, etc.); the third, designs; the fourth, single letters; the fifth, combinations of two letters; the sixth, combinations of three letters; the seventh, words of four letters; the eighth, words of five letters; and in the ninth, discriminations were required as a transition to prepare the S for the actual reading sets. Criterion for advancing in prereading sets was a per cent error rate below 20 on the previous set. Following completion of the nine prereading sets, a posttest was given. This was the same test as was administered in the beginning to determine matching ability. Again, the criterion for advancing to the actual reading sets was 10 per cent or less error rate on both tests.

The reading sets were divided into units of ten sets, and the words were introduced at the rate of one word per set. Pre- and posttests were given for each unit of ten words. No criterion was set within the program for advancing from one unit of words to another. However, in our classroom, a criterion of 30 per cent error or less was required for advancing through the units. The first reading set was a paradigm upon which all of the following were built. It contained only 11 items, but the succeeding sets became increasingly longer as more words were learned and presented for review.

At predetermined points within the presentation of the reading sets, tasks were given to test comprehension and provide generalization from the teaching-machine sets to printed matter.

The data recorded for each child in the program included: 1) per cent error rate for the prereading sets when it was necessary to administer them; 2) per cent error rate on the discrimination test designed to test prerequisite skills; 4) per cent error rate on each of the reading sets within a unit; and 5) per cent error rate on pre- and posttests for each unit of ten words.

An analysis of the per cent error rate for the Ss included in the program during this period is shown below. Table 33 is a report of pre- and posttest data by unit numbers 0 - 4 of the reading program. Each unit was composed of ten sets, introducing one new word each set. The number of pupils scoring in a particular error-rate category should be compared with the number of pupils who completed that particular unit. Copies of this data were sent to the Programed Learning Classroom Project at Rainier School to further aid in evaluation and refinement of the reading program.

Table 33

Pre- and Posttest Data for Rainier Reading Program

Units of 10 Words	% Error on Pretest	No. Ss Obtaining Percentage	% Error on Posttest	No. Ss Obtaining Percentage	Total No. Ss Taking Pre- and Posttest for Each Unit
0	90 - 100	8	0 - 10	6	12
	70 - 80	2	20 - 30	6	
	40 - 60	2			
1	90 - 100	10	0 - 10	1	11
	70 - 80	1	20 - 30	6	
			40	4	
2	90 - 100	3	0 - 10	3	4
	80	1	20 - 30	1	
3	90 - 100	3	0 - 10	1	2
	60	1	20 - 30	1	
4	90 - 100	1	10 - 20	1	1

The program continued to work satisfactorily during 1967-1968. Most subjects acquired a high percentage of the basic vocabulary words presented to them in the program. However, retention data had not been available. Of the original group of 16 girls, ten were still residents of Mimosa during 1968-1969 and were available for retesting ten months after they had been terminated in the program. Results indicated a very satisfactory retention level, especially so, considering the subjects had no systematic training during the follow-up period. Table 34 presents this follow-up data.

Table 34

Rainier Reading Program
(Evaluation of Word Recognition 10 Months After Training)

	Words Presented	Words known on Pretest		Words known on Posttest		Words known 10 months later	
	$\bar{X}$	$\bar{X}$	%	$\bar{X}$	%	$\bar{X}$	%
Ss still on Mimosa (N = 10)	84	8	9.4	58	69.4	44	53.0

Description of Reading Session: Upon arrival at the classroom for her session, each girl sat in a chair until she was called to join the research assistant in an enclosed booth. The reading set for that session was placed into a Min/Max III Teaching Machine. The S began the reading set when the assistant so indicated. Immediate reinforcements for correct responses on the reading sets were usually presented in the form of social praise and marks. After completing each reading set, the S performed the comprehension tasks assigned for that set. When the S was to perform the task alone, she was instructed to raise her hand when finished. The research assistant then checked her work and gave marks for the correct items. The girl corrected any errors which were made. At the end of each session, the S traded any full sheets of marks for tokens, consumables, or money. The exchange rate was predetermined according to the individual.

Reading Readiness Program: Some Mimosa residents required reading readiness skills. During 1968-1969, the Mimosa staff used a commercially available readiness program, Listen, Mark, and Say, developed for use with intellectually normal children. The program is designed to teach visual discrimination, attending to verbal commands, use of written response, sequencing, categorizing, and generalizing. The program was of assistance in preparing children for programed courses of instruction, such as the Rainier Reading Program.

Nine Mimosa "A" girls, ranging in age from 7 to 12, were selected as test subjects. The program was conducted 20 times in 30-minute sessions. The program consisted of a series of tape recordings which instructed the subjects, as a group, to make written and oral responses.

Since the program did not include a test, it was necessary to construct one to evaluate its effectiveness. It was desired to test generalization of program effects rather than memory of content. Accordingly, no test items were taken from the program items presented to the students. Instead, similar items judged as representing the same concept or skill were selected. The test was administered before instruction began and again at the conclusion of the teaching session.

The difference in pre- and posttest scores was analyzed by a t-test for matched pairs. The results indicated a small but statistically significant increase in scores at the end of the sessions (see Table 35). In the judgment of the instructor, the first part of the test (attending to verbal commands, visual discrimination, and use of written responses) was more effective than the last part (sequencing, categorizing, and generalizing). It was felt that the second part of the test was more abstract, steps between concepts were too large, and the steps moved too quickly. To test this assumption, the test was divided into the first part (23 items) and the second part (12 items). A t-test for matched pairs was applied to the separated parts. The results sustained the assumption. There was a statistically significant increase from pre- to posttests on the first, but not on the second part of the test.

Table 35

Analysis of Reading Readiness Scores - Pre- and Posttest Mean Scores

First Part (23 items)

$\bar{X}$ Pretest = 18.6
$\bar{X}$ Posttest = 21.3
$\bar{X}$ Change = +2.7
t = 3.06 df = 8 P .025 (1-tail)

Second Part (12 items)

$\bar{X}$ Pretest = 6.1
$\bar{X}$ Posttest = 5.2
$\bar{X}$ Change = -.9
t = 1.28 df = 8 P .20 NS (1-tail)

Total Test (35 items)

$\bar{X}$ Pretest = 24.8
$\bar{X}$ Posttest = 26.6
$\bar{X}$ Change = +1.8
t = 2.06 df = 8 P .05 (1-tail)

Counting Program

Abstract

The project staff developed courses of instruction for counting by one's, five's, and ten's. Techniques included providing initial cues and gradually fading these prompts and reinforcement of correct verbal and written responses. After success in this program, students were enrolled in the arithmetic and/or time-telling programs.

Many of the girls on Mimosa could recognize numbers and count by one's, but could not count by five's or ten's. These skills are prerequisites to such tasks as time-telling and change-making. However, existing and published materials did not prove to be functional for teaching trainable level, mentally retarded subjects. It was necessary, therefore, to devise programed courses of instruction in these subject matter areas. The following is an example of the procedures developed by the project staff to teach counting by five's. The procedures used for learning to count by ten's were essentially similar and will not be reported.

The subject was presented with a work paper on which were printed 12 equally spaced marks. Instructions were given to count aloud by five's, and simultaneously to write the numbers on the marks. When the *S* made a mistake she was presented with 12 written numbers from five to 60 and was asked to read them aloud to the instructor. A second line of numbers identical to the original was placed just below. In the second line, one or more of the numbers was missing. The *S* was instructed to read them in sequence and to fill in the missing numbers by referring to the line above. Later in the program, the *S* was required to complete the blank spaces in such number series without the aid of a line of model numbers. An example of the procedure is given below:

5	10	15	20	25	30	35	40	45	50	55	60
5	10	15	20	25	30	35	40	45			60

During the latter part of the program, the second line was not visible when the *S* responded. Only when the assignment was completed was this line made available for the *S* to confirm or correct her performance. As the program progressed, the numbers were gradually faded until the *S* was able to write and say the numbers without assistance.

During 1968-1969, seven Ss from Mimosa "B" and "C" ranging in age from 13 to 20 years were enrolled in the program. The data presented below represent the group mean percentage correct on the pre- and posttest for the seven *Ss*.

	$\bar{X}$ Pretest	$\bar{X}$ Posttest	$\bar{X}$ Increase
Counting by five's	14.3%	97.7%	83.4%
Counting by ten's	13.1%	97.6%	84.5%

The program was functionally successful with all subjects. Six of the seven girls were subsequently enrolled in the time-telling program.

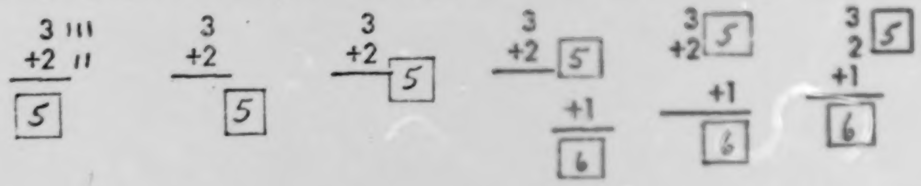
Arithmetic Program

Abstract

An arithmetic program was written to teach basic addition and subtraction. The program included props to make acquisition easier. Then these props were faded. Pretests and posttests were included before and after each unit. All of the subjects made significant gains.

Addition and subtraction are prerequisites to such critical adjustment skills as time-telling, and change-making. Existing and published materials for teaching these skills to trainable level, mentally retarded children had not proven to be functional. The developers of the Rainier Reading Program provided the project staff with a description of a program under development which promised to be more suitable for low-level subjects. Using the description of the Rainier Arithmetic Program, the project staff designed their own programed courses of instruction for nine different computational areas.

The distinctive feature of the system, which pervades all programs, is that subtle computational steps have been identified and made explicit. Also the learner is provided with props which make acquisition easier. Gradually these props or additional cues are faded. To exemplify the system, an example from an addition program will be used. The student was asked to add two digits by counting the total number of marks associated with the digits. For instance, to add three and two, they made three marks then two marks, counted the total and placed the sum in the box below the line. By shifting the position of the box it became possible to teach the principle of three-digit addition.



Similar steps were used to teach each new section of the program.

During 1968-1969, nine Ss from Mimosa "B" and "C" began the program. They were enrolled at different times because of scheduling difficulties and because each S possessed a different level of prerequisite skill (number recognition, counting, and one-to-one correspondence). For this reason, there was a different number of Ss available in the different areas of the program at the time of testing.

Each S was given a pretest covering all units. To evaluate the program, all Ss, regardless of the unit they were on, were given the posttest. Scores were reported for each unit for those Ss completing that unit.

Table 35 presents the mean per cent correct on the pretest and the posttest for each unit, the number of Ss who completed each unit, and a brief description of the material covered in that unit. The data indicates that Ss made satisfactory progress.

Table 36

$\bar{X}$ Per Cent Correct Responses per Group per Unit

	Pretest	Posttest
Unit I, N = 9; 2-digit addition	34.6	70.3
Unit II, N = 8; 3-digit addition	29.2	70.8
Unit III, N = 7; 4-digit addition	25.7	71.4
Unit IV, N = 6; subtraction	9.5	69.0
Unit V, N = 4; 5-digit addition	50.0	62.5
Unit VI, N = 4; horizontal addition	37.5	58.4
Unit VII, N = 4; horizontal subtraction	0.0	50.0
Unit VIII, N = 3; 2-column addition (w/o carrying)	33.3	50.0
Unit IX, N = 3; 2-column subtraction (w/o borrow.)	0.0	50.0

During 1969-1970, the above seven Ss were continued in this arithmetic program. An additional eight Ss completed the program during that year.

Time-Telling Program

Abstract

Not being able to discriminate the hour and minute hands made time-telling difficult to teach the trainable level retarded children. The solution to this problem was found by adding cues in the form of numbers printed outside the regular clock face. These numbers represented the number of minutes which corresponded to the hour numbers of the clock face. Gradually, these cues were faded until the student could read an ordinary clock face.

The critical skill of time-telling has been very difficult to teach to trainable level, mentally retarded children. Very little progress was made until a suggestion made by a consultant to the project was put into operation. The basic problems in learning consisted of Ss not being able to discriminate the long hand and the short hands and their respective functions. The solution consisted basically of making explicit the required mental operations. To accomplish this, additional cues were provided in the form of numbers printed outside the regular clock face. The numbers represented the number of minutes which corresponded to the hour numbers of the clock face. For instance, opposite the three on the clock face was printed the number 15. These additional numbers were printed in red. Also, the long, or minute, hand was colored red to correspond to the red minute numbers. The short or hour hand was colored black to correspond to the black hour numbers. Gradually, these additional cues were faded until the S could read an ordinary clock face (see Exhibit 33).

The pre- and posttest consisted of 60 clock faces with the hands arranged to represent an equal number of different times. The student was required to write the numbers that represented the time seen on the clock faces. Sixteen Mimosa "B" and "C" girls were enrolled in the program during 1968-1969. The results presented below indicated that most girls acquired a limited time-telling ability and were able to retain it for a two-month period.

$\bar{X}$ Pretest	$\bar{X}$ Posttest	$\bar{X}$ Follow-up (2 mos.)
29.3%	60.0%	60.6%

Individual Problem

Acceleration of Arithmetic Work Time

Abstract

This problem dealt with work-time required to complete an arithmetic assignment. Modification procedures consisted of systematically reducing the time allowed per assignment. The time was reduced from 30 minutes to 15 minutes. Error rate remained stable for both before and during treatment.

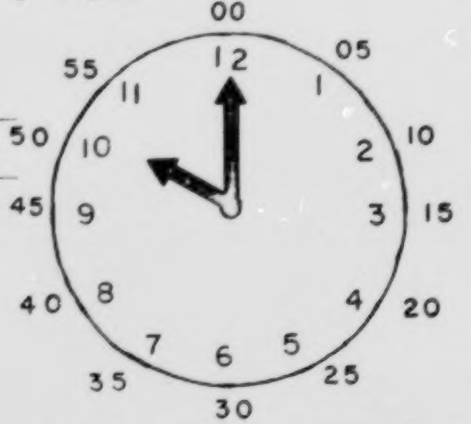
A 17-year-old Mimosa resident, Stanford-Binet IQ 33, was placed in the arithmetic program in the experimental classroom. Initially, she completed from three to four pages of assignment during the one-hour period. When she became ready for a more advanced program, three-column addition, her work time increased markedly. It now took her more than an hour to complete an assignment. It was felt that she was capable of working more rapidly even with more difficult material. A treatment program was designed to accomplish the acceleration of work time. A small pocket-style timer with alarm (Endura Time Corp., New York) was set for a predetermined number of minutes each time the S began a new page of work. At first, the time allowance was quite generous, but was gradually shortened for each succeeding lesson. If she completed her work before the alarm buzzer sounded, she was reinforced with marks on a card which were exchangeable for candy and toys. Reinforcement, as well as time allowed for work, was gradually decreased.

Exhibit 33 - Sample of Time-Telling Program

The hour hand is black. It points to ___

The minute hand is red. It points to ___

10:00 (___:___)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05
10
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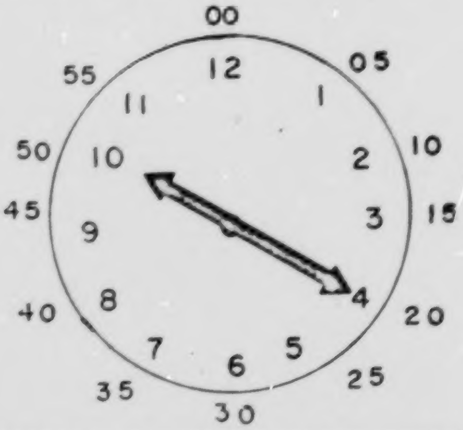
20
25
30
35
40
45
50
55
12
1
2
3
4
5
6
7
8
9
10
11

* * *

The hour hand points to ____

The minute hand points to ____

10:20 (___:___)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12
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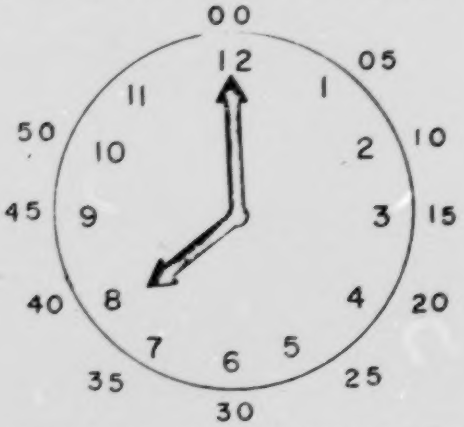
10
11

* * *

The hour hand points to ____

The minute hand points to ____

8:00 (___:___)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20
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30
35
40
45
50
12
1
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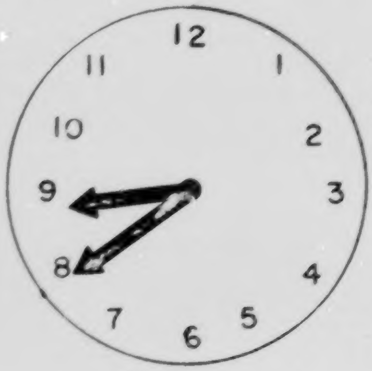
4
5
6
7
8
9
10
11

* * *

The hour hand points to ____
The minute hand points to ____
8:40 (___:___)

(The steps listed above do not represent sequential steps. These are steps throughout the program that exemplify the fading techniques. To provide extra cues, the minute hand and numbers outside the clock face were printed in red.)


12
1
2
3
4
5
6
7
8
9
10
11

During the course of 11 sessions, work time decreased from an average of 30 minutes per page to an average of 15 minutes. The acceleration was accomplished in spite of the fact that the arithmetic problems became increasingly difficult from first to last session. Error rate remained fairly stable at above 33 per cent both before and during the treatment phase.

DEMONSTRATION FUNCTIONS

Training Cottage Staff

Prior to joining the staff, the program supervisor spent six weeks at the University of Washington in a workshop conducted by Sidney Bijou and Barbara Etzel. This workshop was designed to train persons in operant techniques as applied to the education of mentally retarded persons. With the aid of the cottage program director, the program supervisors trained about 45 research assistants during the five-year grant period.

The formal training program for the research assistants was divided into three categories:

1. Individual study course in operant principles;
2. Observation techniques;
3. Methods of teaching.

Each research assistant was required to begin the individual study course on date of hiring. The course consisted of 10 of the 20 units of study as described in Parsons Demonstration Project, Report No. 35, July 1965 (Complete Set of Materials for Summer Course in Behavior Analysis, by Jack Michael, Ph.D., Instructor, Arizona State University). The purpose of this individual study approach was to build an understanding of operant principles and a workable vocabulary, necessary to function as a research assistant within the structure of the cottage project.

The study units were introduced to the personnel by the program supervisor and the program director. Specific instructions were given and required textbooks were made available (see report No. 35). Each assistant spent full work-time in study until the first six units of the programed course were completed. Instruction during this period consisted of individual discussions with the program supervisor. Discussions were arranged after completion of the readiness test or when difficulty was encountered. The tests over the units were graded by the supervisor or director. If criterion performance for a given unit was met, the assistant automatically proceeded to the next unit. If not, the assistant was allowed a second opportunity to answer the questions. This second opportunity consisted of the assistant responding verbally to the program supervisor in answer to questions previously answered incorrectly in writing. If the assistant were still unable to meet criterion performance, the points of misunderstanding were discussed and remedial reading was assigned. After completing the remediation task, the assistant then took a second test covering the same study unit.

A short course in observation techniques was introduced to all assistants after completion of the fifth unit in the individual study course. The observation training course consisted of three sections.

1. In the first section, printed materials on observation were given by the program supervisor on: a) the role of an observer; b) rules of observation and techniques; c) types of observation and the forms used for each; d) steps in observation; e) defining behavior; f) establishing an observation code; g) recording observations; and h) graphing data.

2. After this introductory phase, the students were given a previously defined code. A research assistant, who was familiar with the code, gave verbal examples of behavior to the students which they were to record on a social-code data form. Following each example, the correct answer was given and discussed. Fifteen such examples were given covering all possible code combinations. The students in the observation course were then taken to the cottage to observe and record observations of the child for whom the code was originally written. The initial phase of observing in 10-second intervals consisted of timing and recording one interval and discussing that interval immediately before attempting a second one. When some degree of familiarity with this style of observation was reached, instructions were given to observe continually, with no pause between 10-second intervals for a period of five minutes. After each 5-minute period, observations were compared and discussed. When at least 85 per cent reliability between the assistant-observer and the students were reached, it was considered that the students were adequately prepared to serve as observers.

3. The third stage of the research assistants' formal training program, methods of teaching, was begun after most of the assistants had completed the individual study course and observation techniques training. In this phase of the training, program emphasis was placed on: 1) the use of social and token reinforcement in shaping behavior; 2) techniques for organizing and teaching activities; and 3) building a repertoire of games and activities for developing motor, social, and academic skills.

The purpose of such training was to develop assistants who could manipulate materials and activities while utilizing reinforcement techniques in working with small groups and individuals. Most of the assistants had previously been working on the cottage with children, but in a less structured manner than was considered desirable for the purposes of the cottage project. Throughout this phase, emphasis was placed on being able to observe while simultaneously working with children, thus becoming sensitive to the specific abilities and limitations of each child within a group.

During this part of the training, films were taken of the assistants as they assumed the responsibility for directing the class. These films were later shown to them and discussed. This method allowed the assistants to see themselves in the role of "teacher." Films and video tapes were used extensively for purposes of providing self-evaluation for the research assistant responsible for the program. Use of such media for this program was to ascertain its value for training purposes. It was determined to be most useful.

Following the self-evaluation period, the assistants were assigned to work specific hours on the cottage during which they could be observed by the program supervisor and/or the research assistant who was assisting in this phase of training. During these observation periods, the research assistants were required to choose an activity, plan the necessary materials, and organize a group of children with whom to work. After each of the observed demonstrations, the research assistants met with the program supervisor to discuss the attributes and limitations of each assistant's methodological performance.

After training, the assistants were capable of planning their own programs within the structure of the project, executing these programs, and gathering data to support the effectiveness or ineffectiveness of their efforts.

Training Hospital Personnel

Throughout the project specific efforts were made to make available to the Hospital staff the training techniques employed on the Demonstration Cottage. These efforts included:

1. Teaching of courses in the Nurses and Aides Inservice Education Program by the project co-director, the cottage program director and the cottage program supervisor. The courses taught were concerned with the principles and techniques of operant conditioning psychology and used demonstrations and supervised practice as well as lectures.
2. Films and tapes were shown to the Hospital administrative staff on the conduct and progress of the demonstration project.
3. Involvements of departments and divisions in cottage work. Personnel from Music Therapy, Speech and Hearing Clinic, Nursing Service, Dietetics, and the Audio-Visual Department have all taken an active part in the conduct of the project by participating in projects and experiments. This type of involvement proved to be an especially useful method of training.

During the last year of the project, aides in training have participated in programs on the cottage. This has proven useful from two points of view. The programs and techniques developed by the Cottage Demonstration Project spread to other cottages, and the aides in training provided more training for the residents of Mimosa.

Training an Aide's Assistant

In order for psychiatric aides to function as behavior modifiers, it was necessary to relieve them of some of the more routine tasks of cottage management. An obvious, but little used solution, was to employ older, higher-level patients as helpers. This was seldom done on this cottage in the past, because the patients available for such work rarely had the required skills. The 19-year-old girl made available to us for this purpose was no exception to the rule. She possessed none of the academic skills requisite to the task, and her behavior toward children was more harmful than helpful. Accordingly, she was given intensive training to remedy these deficiencies.

The duties of this assistant were: sending cottage girls to their on-grounds classes at the correct time (requiring the ability to read names, activity areas, and tell time); supervising cottage-work routine (requiring the use of language and behavior of a quality "above" that displayed by the girls on the cottage); and correctly discriminating the appropriate occasion to reinforce or extinguish selected behaviors of the girls on Mimosa "B".

In the classroom, she was given a pretest for a time-telling program. She correctly identified only five of the 12 times presented on drawn clock faces. She was tested for spelling the 28 names of the Mimosa "B" girls. She successfully spelled only three of the names. On February 22, the California Achievement Test was administered and she obtained a total battery grade placement of 3.0.

Throughout her first month of work, she was observed by the staff to display many inappropriate verbal behaviors. Some were in the form of critical remarks which were not discriminatory for modifying the residents' behavior, such as: "You're a baby," etc. Others were exhibited in playing with the residents at their own level, rather than as a leader. She made practically no positive or constructive remarks.

Coded observation of her social behavior was begun. The observers coded the intervals in which the girl shouted, made critical remarks, played with the residents, or, on the positive side, made reinforcing remarks to the girls.

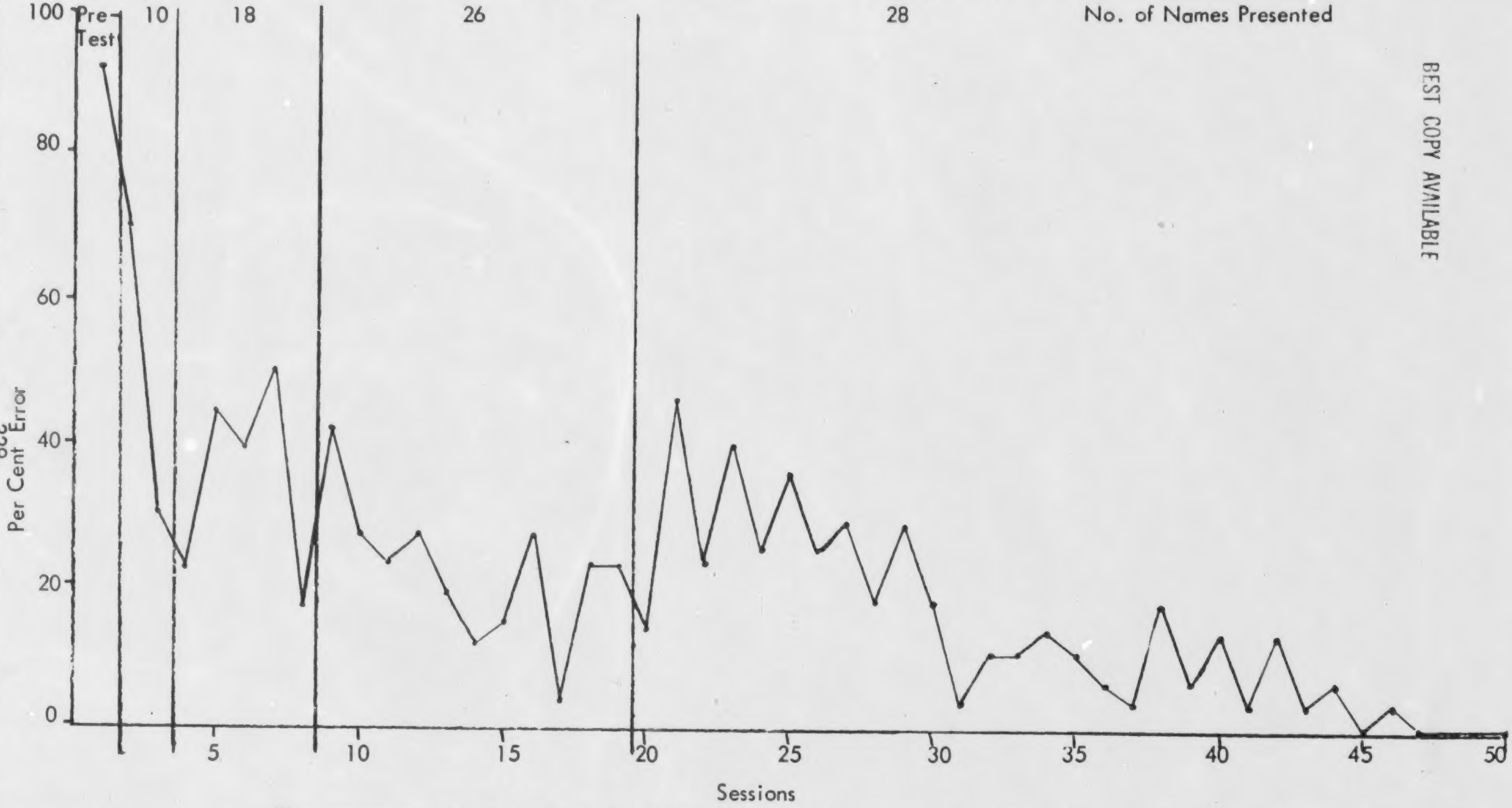
Baseline, per se, was never possible since behavior modifications, of necessity, were begun immediately. What did emerge was a type of behavior-progress report, which showed clearly a decline of the inappropriate behavior to a near-zero level, and a rise of appropriately reinforcing comments to the residents for about 18 per cent of the time she was observed.

In the classroom, she learned to: 1) spell and read the names of the 28 girls, as well as the days of the week (see Figures 54 and 55); 2) tell time accurately (see Figures 56 and 57); and 3) to do simple addition and subtraction, including word problems. She completed 16 units of a remedial reading program and parts one and two of the Reader's Digest "Reading Skill Builder, Grade II."

The procedure used for learning to read and write the residents' names was to have her write ten names, assigned for homework, ten times each, and to bring her assignment to the classroom the next day to receive points for correct work. No specific order was followed in assigning the names, except that no more than three of the more difficult to spell names were given. She was tested in the classroom sessions on all 28 names, and her homework consisted of ten of the names she missed on the test. On May 12, 1966, she was again given the C.A.T., and earned a total battery of 3.2, which was a gain of two months' score over the first test.

Figure 54

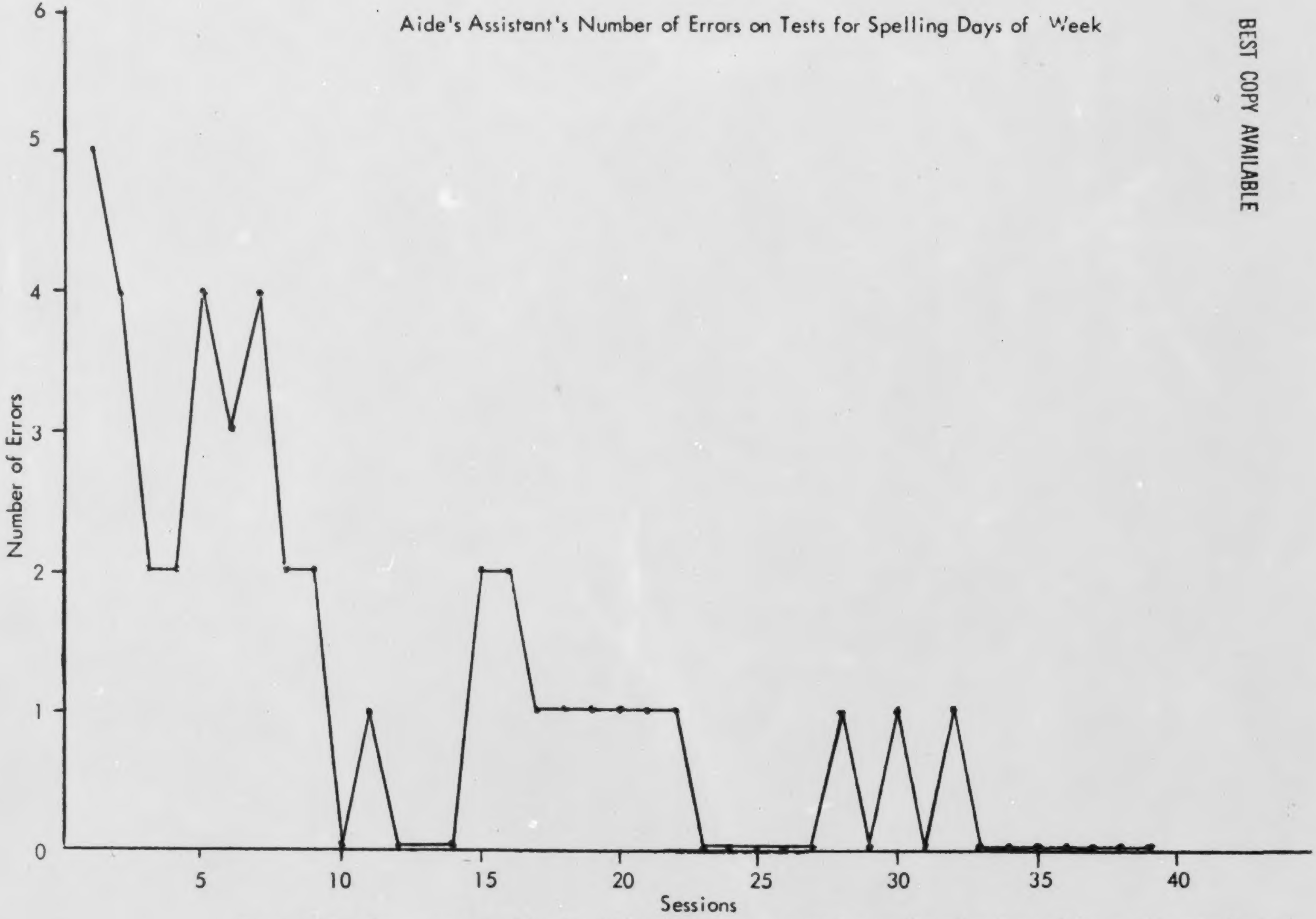
Aide's Assistant's Per Cent Error Rate on Tests for Spelling Residents' Names



The percentage of errors emitted by the Aide's Assistant on tests for spelling the residents' names reflected by session. The number of names presented in each group of sessions is located on the top abscissa beginning with a pretest of 28 names, and ending with Session 51 in which 28 names were also presented.

Figure 55

Aide's Assistant's Number of Errors on Tests for Spelling Days of Week



The number of errors emitted by the Aide's Assistant on tests for spelling the days of the week are reflected by sessions.

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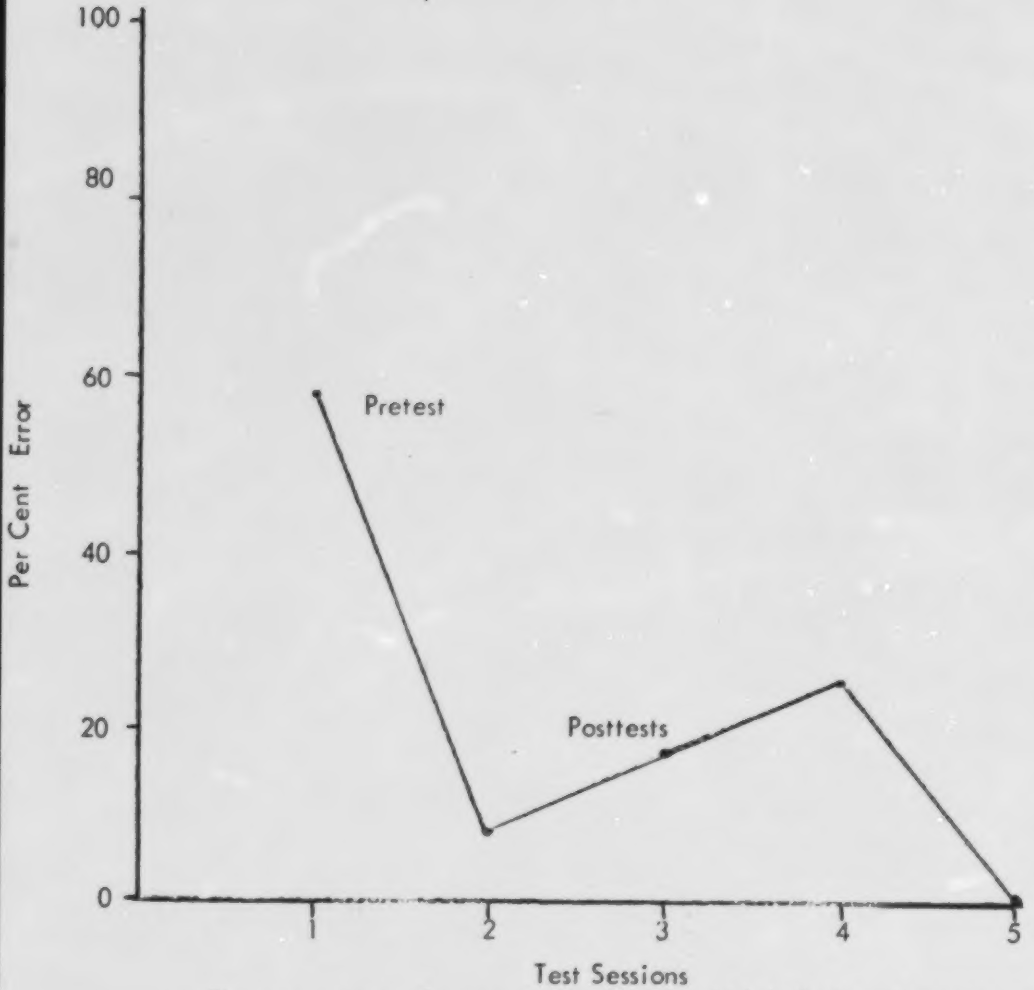
Figure 56

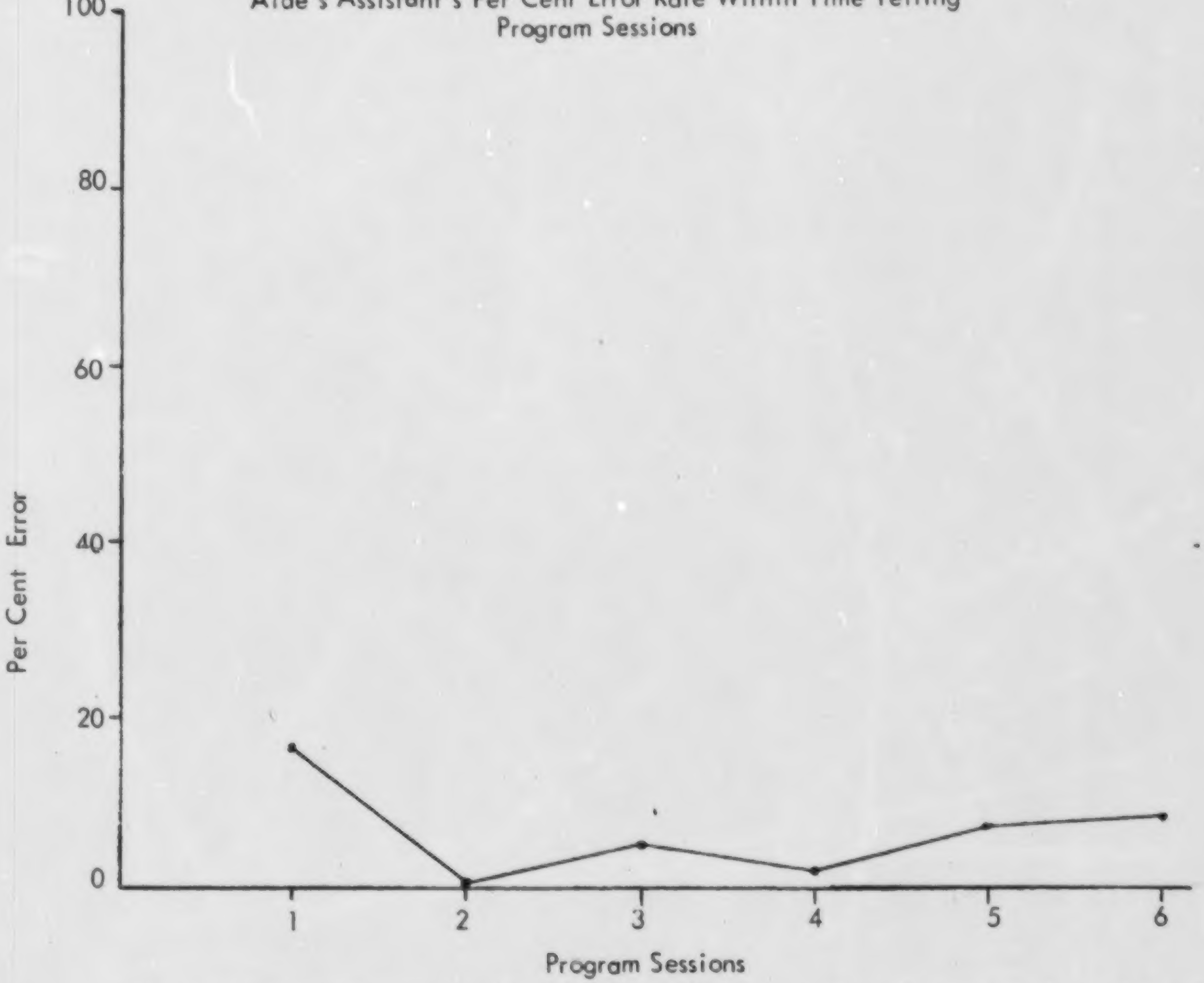
Aide's Assistant's Pre- and Posttests Per Cent Error Rate for Time-Telling Program



The percentage of errors emitted by the Aide's Assistant on one pretest and four posttests is reflected by test sessions. It is of note that the S's error rate was eliminated when telling time became a functional part of her daily work.

Figure 57

Aide's Assistant's Per Cent Error Rate Within Time Telling Program Sessions



The percentage of errors emmitted by the Aide's Assistant is reflected within each session of the time telling program. See Fig. 56 for pre- and posttest results.

An on-cottage program was devised in which the aide and research assistant working with her were able to give immediate and meaningful reinforcement when she was engaging in positive or constructive behavior. At the time these appropriate behaviors were observed, a money slip signed for five cents was presented to the girl with an explanation of which behavior was being reinforced. It was shortly after this procedure began that the dramatic change in her social behavior was observed.

On May 12, 1966, it was felt that she was equal to the requirements of her job. She was reliable, and capable of making a few school-schedule changes when they occurred. It was observed that her ability to answer the telephone and take messages properly had greatly improved. She was also quite capable of engaging the Mimosa "B" girls in game-like activities throughout the day, and in holding their interest for the duration of the game by using social reinforcement. As part of her reinforcement, the cottage staff conducted a brief graduation ceremony. She was presented with a name tag bearing her name and the title "Aide's Assistant." She has since been accepted for an outside-training placement in a downtown cafe.

Publications

A 45-minute film "Operation Behavior Modification" was produced. This film has been used by many institutions, public school systems, private school systems, etc., to introduce and explain behavior modification. The film is available through Robert Hoyt, Bureau of Child Research, University of Kansas, Lawrence, Kansas, or the National Film Library, Atlanta, Georgia.

Two articles have been published by the cottage staff:

1. Lent, J. R. Mimosa Cottage: Experiment in hope. *Psychology Today*, 1968, June, 51-58 (see Appendix G).
2. Lent, J. R., LeBlanc, Judith, and Spradlin, J. E. Designing a rehabilitative culture for moderately retarded adolescent girls. In R. Ulrich, T. Slochnik and J. Mabry (Eds.), *Control of human behavior*, Vol. III. Glenview: Scott, Foresman & Co., 1970, 121-135.

Visitors to the Cottage

Over a thousand individuals from other institutions, special classes, day-care centers, university and research centers have visited, observed and/or participated in the cottage procedures. These visitors have spent from one hour to two weeks with the project. Visitors who stayed for only a short period of time were shown the movie of the cottage activities ("Operation Behavior Modification"), and given a brief tour of the cottage. Visitors who stayed longer were instructed in the principles and techniques of behavior modification and assigned to various activities for actual participation.

Consultancies

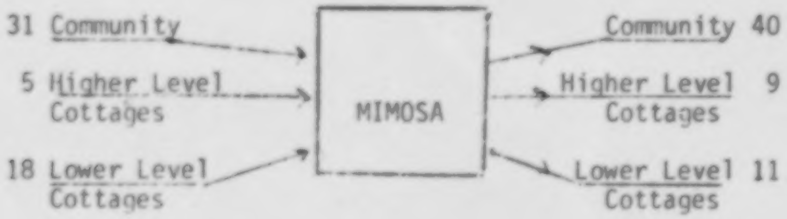
During the five years of the project, approximately fifty facilities were served by the program director or program supervisor as consultants. The principles and techniques of behavior modification developed in work on the demonstration cottage were explained to these various facilities. Lectures, slides, and movies were employed to demonstrate the cottage program.

Conventions

Two conventions were attended annually by either the program director or program supervisor. These conventions were attended to present papers or to extend the project staff's knowledge of new developments in the field of mental retardation.

SUMMARY

One way to evaluate this project would be in terms of its success in attaining the specific goal of returning trainable level institutionalized girls to the community. The project has been quite successful in attaining this goal. During the project's five-year funding period, a total of 40 girls, from the original group of 71, have been returned to the community. All of these girls are making a sheltered community adjustment; that is, they receive some degree of supervision and care during nonworking hours. Most of the placements were made in nursing homes, where the girls work full-time for room and board. Only a few of the 39 girls were returned to their natural homes. Several girls live in half-way houses or hotels for retarded persons. These girls work in sheltered workshops or community jobs during the day. The diagram given below shows the movement of girls to, within, and out of Mimosa Cottage for the entire five years.



Although it has not been possible to do systematic long-term follow-up, the staff has been able to get periodic information concerning most of the girls. According to the persons responsible, most of the girls have made a satisfactory adjustment. However, three of the girls did not make a good work adjustment and are currently placed in a low-demanding workshop. Another girl married a former resident of Parsons State Hospital and Training Center. This couple is living in Parsons and making a marginal adjustment.

Since it was not possible to have a control group, it cannot be said that other procedures would not have produced similar results. However, from a historic point, other procedures have not produced these results.

Our experience has confirmed that careful, individual placement is as important as training in skill areas. Kansas has various groups with the facilities to make such placements. However, the Cottage Demonstration Project had been in operation for several years before these agencies could adjust their philosophies and practices to be of practical help--

finding and arranging placements for girls from this project. At the present time, the Hospital Social Service staff is working cooperatively with various state agencies to make community placements for eligible children.

Evaluation of the project can also be made on a monetary basis. The cost to the State of Kansas for lifetime institutionalization of one person is conservatively estimated to be in excess of $100,000. The 40 girls, trained and placed by this project, ordinarily would have been institutionalized for life. However, these children have been returned to the community to be productive and nondependent. Ultimately, however, the project must be judged on another basis.

The impact on mental health practices in other institutions is a more valid evaluation of the project. From the outset, the project has received frequent exposure. The exposure has included more than 2,000 visitors to the cottage annually, more than 100 small groups who spent from two days to two weeks at the project site, presentation at ten major conventions, publications in national magazines, a chapter for a textbook, and more than 40 schools were provided with consultations. Presently, there are few institutions or schools that do not practice some of the techniques of behavior modification demonstrated by the project.

Observations made while serving as consultants to various projects around the United States have confirmed the fact that this project has influenced the upgrading of patient care. Unfortunately, the changes have not been drastic. There are a number of cogent reasons why the Demonstration Project model has not been adopted in its entirety by many other settings. One primary reason seems to be that other institutions have not been willing or able to adopt a comprehensive program. Parts of the system operating part of the day has been the pattern of implementation by other groups.

It does seem worthwhile to have challenged traditionalism in all its institutional forms. Some changes in child care have been effected and the process will continue.

APPENDIX A

APPROPRIATE DRESS PROGRAM

Appropriate Dress Program

1. Color Combination Matching - The terminal goals of this category were to teach that not all colors look attractive when worn together as an ensemble, and which colors make the most attractive combinations.

Materials--Eight 2" x 4" cards (example cards): In the center of each card, made of solid color construction paper, were attached two smaller squares of different solid colors. These colors were considered to be appropriate in combination with the background color of the card, i.e., the three colors could be worn together (see Exhibit 34 for an example of the cards and a list of color combinations used for each card).

Exhibit 34

Example of Background Colors and Matching Colors

Example Card	Background Color	Matching Colors in Small Squares
1	Yellow	Brown and white
2	Orange	Brown and white
3	Red	Blue and white
4	Blue	Red and white
5	Green	Brown and white
6	Purple	Pink and white
7	Pink	Purple and white
8	Brown	Yellow, orange, green and white

Yellow (background)

Brown White

Example Card #1

Procedure for teaching subject the use of the cards: Example Card #1 was placed before the S who was asked to name the colors on the card. The E then told her while pointing to the yellow on the card, "If you had a yellow blouse, what color skirts could you wear with it?" The E pointed to the brown and then white (the colored squares in the center) in order to prompt the S to make the correct verbal responses. After the S's correct response, she was told, "Yes, you can wear brown and white with yellow." This procedure was repeated for each of the eight example cards.

2. Color Matching - The next part of the program was designed to train the Ss to match a correct color with a sample color. Ten 2" x 2" pieces of material of different colors (swatches) were used. The colors were yellow, orange, red, blue, green, purple, pink, brown, white, and black.

Eight sets were developed to teach each S the appropriate colors to be worn with each of eight background sample colors. Sets #1 and #8 can be seen in Exhibit 35.

Exhibit 35

Color Matching
Set #1

Sample Color	Choice Colors (correct match underlined)
Yellow	1. red, white, blue 2. white, orange, pink 3. black, blue, white 4. white, red, blue 5. orange, black, white
	6. blue, brown, orange 7. red, pink, brown 8. black, brown, orange 9. blue, black, brown 10. brown, orange, red
	11. orange, brown, white 12. red, brown, white 13. purple, brown, white

The sample color appears on the left side of each set and the choice of colors was on the right side. The correct choice color was underlined. Each set varied in length from 13 to 21 items.

Review for items previously learned was provided in subsequent sets. The choice color to be learned in each set was presented in the first half of the set as well as one or two review items. The remainder of the set reviewed all colors learned in earlier sets as well as the one in the set being presented.

During the first half of the set the example card was available for the S as a prompt for the correct response. This was removed after the first half and the S had to respond without prompts.

Exhibit 35 (cont.)

Set #2

Sample Color	Choice Colors
Orange	1. purple, black, brown 2. brown, green, blue 3. brown, yellow, purple 4. green, brown, purple 5. black, brown, blue

Exhibit 35 (cont.)

Yellow	6. pink, brown, red
Orange	7. white, black, blue
	8. white, purple, green
	9. yellow, red, white
	10. white, green, black
Yellow	11. white, orange, black
	12. white, brown, red
	13. white, brown, purple
Orange	14. white, brown, black
	15. white, brown, blue

Set #3

Sample Color	Choice Colors
Red	1. blue, orange, purple
	2. green, pink, blue
	3. orange, blue, black
	4. brown, green, blue
	5. yellow, blue, purple
Orange	6. blue, green, brown
	7. white, yellow, pink
Yellow	8. brown, pink, orange
Red	9. orange, white, blue
	10. white, pink, purple
	11. blue, white, green
	12. blue, white, orange
Yellow	13. brown, white, black
	14. brown, white, orange
Orange	15. brown, white, red

Set #4

Sample Color	Choice Colors
Blue	1. red, green, orange
	2. red, purple, black
	3. red, yellow, brown
	4. red, green, black
	5. red, purple, yellow

Exhibit 35 (cont.)

Red	6. blue, pink, green
Orange	7. brown, pink, green
Red	8. blue, yellow, pink
	9. white, orange, green
Blue	10. white, orange, black
Red	11. blue, white, yellow
Orange	12. brown, white, blue
Yellow	13. brown, white, pink
Blue	14. white, red, brown
	15. white, red, purple

Set #5

Sample Color	Choice Colors
Green	1. brown, orange, red
	2. brown, blue, purple
	3. pink, brown, orange
	4. brown, red, blue
	5. brown, purple, pink
Blue	6. red, black, yellow
	7. white, green, orange
Red	8. blue, orange, purple
Blue	9. white, yellow, brown
Red	10. blue, pink, orange
Yellow	11. brown, blue, pink
Orange	12. brown, black, green
Green	13. brown, white, orange
Red	14. blue, white, pink
Blue	15. red, white, yellow

Exhibit 35 (cont.)

Set #6

Sample Color	Choice Colors
Purple	1. pink, orange, green
	2. pink, red, blue
	3. pink, brown, orange
	4. pink, black, blue
	5. pink, green, yellow
Green	6. brown, red, orange
	7. brown, blue, purple
	8. brown, pink, red
Purple	9. white, green, brown
	10. white, orange, blue
Blue	11. red, blue, purple
	12. white, orange, green
	13. white, brown, black
Green	14. brown, red, orange
Red	15. blue, pink, purple
Purple	16. pink, white, red
	17. white, pink, blue
	18. pink, white, green
Green	19. white, brown, pink
Blue	20. white, red, pink
Red	21. blue, white, brown

Set #7

Sample Color	Choice Colors
Pink	1. purple, yellow, red
	2. purple, green, brown
	3. purple, black, yellow
	4. purple, orange, red
	5. purple, green, brown
Purple	6. pink, red, green
	7. white, orange, blue
Green	8. brown, black, red
	9. white, orange, red
Blue	10. red, purple, yellow

Exhibit 35 (cont.)

Pink	11. white, orange, green
	12. white, black, red
Red	13. blue, orange, yellow
Yellow	14. brown, red, blue
Orange	15. brown, purple, green
Pink	16. purple, white, red
	17. purple, white, green
Green	18. brown, white, orange

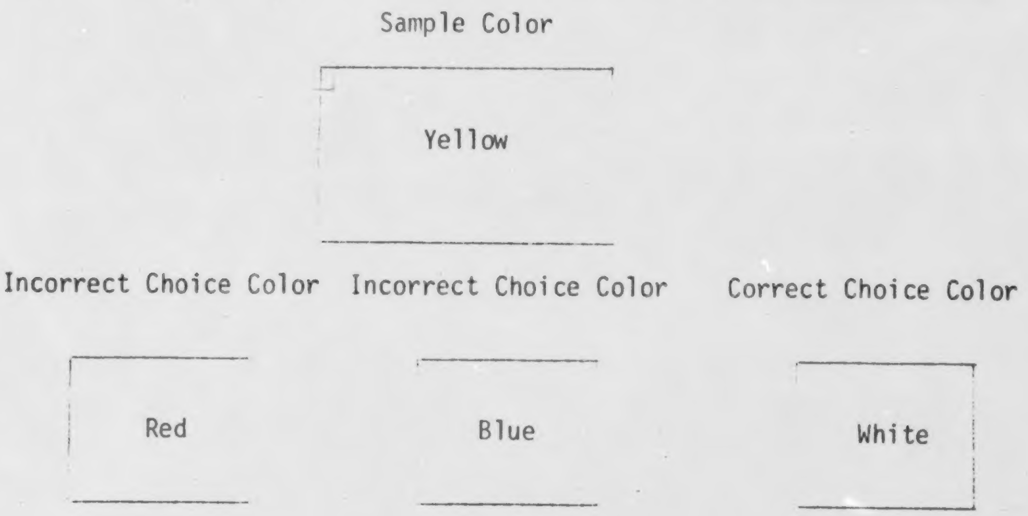
Set #8

Sample Color	Choice Colors
Brown	1. yellow, purple, pink
	2. yellow, red, black
	3. yellow, blue, purple
	4. yellow, pink, black
	5. yellow, blue, black
Pink	6. purple, green, orange
Purple	7. pink, red, blue
Red	8. blue, orange, black
	9. white, green, yellow
Blue	10. red, yellow, brown
Green	11. brown, red, blue
	12. white, orange, purple
Orange	13. brown, purple, blue
	14. white, green, yellow
Yellow	15. brown, blue, red
Brown	16. orange, blue, red
	17. orange, black, pink
	18. orange, blue pink
	19. green, blue, black
	20. green, pink, black
	21. orange, red, purple

The arrangement of the colored swatches is shown in Exhibit 36.

Exhibit 36

Order in Which the Swatches Were Placed on the Table for Matching-to-Sample (Set #1--Item #1)



One colored swatch was placed on the table as the sample. Three differently colored swatches were placed beneath it. One or more of the colors in the group of three could be worn appropriately with the sample.

The E stated, "If you had a yellow blouse and three skirts--one red, one white, and one blue--which one of them would look best with your yellow blouse?" The E pointed to each swatch as it was referred to. During all eight sets, when white was presented as a choice, the E made the statement that white goes with any color.

As the S became familiar with the procedure by responding before or during the direction, the E faded the comments and directions.

Marks exchangeable for a generalized reinforcer were given throughout the training sessions. Data were kept on each item within the set for each girl. The per cent error for each set was kept, as well as the per cent error for the group on each item.

Follow-up Exercises: Three procedures to maintain the responses learned during the color-matching program are listed below.

1. Ss worked in groups with a felt cut-out doll for a period of 30 minutes. The doll had several skirts and blouses of the same colors used in the program. The doll was placed on a felt board, and the Ss chose appropriate clothing ensembles and dressed the doll. This procedure was to increase generalization from swatches of material to clothing.

2. Charts showing the example cards were posted on the cottage walls for the Ss to use when choosing clothing for the day. Ss were reinforced with generalized reinforcers on an intermittent schedule for using the chart.

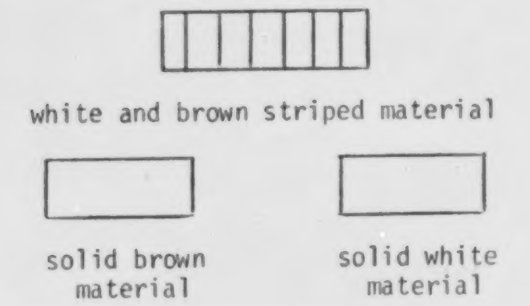
3. Aides and research assistants gave generalized reinforcers to Ss who wore clothes that were appropriately matched in color.

3. *Figure Combination Matching* - Each S completed this category individually. The Ss had been observed wearing inappropriately matched figured ensembles. They wore, for example, checked blouses with flowered skirts. The purpose of this category was to teach the Ss if one article of dress were of a figured material, any other article of clothing worn with it must be a) a solid color, and b) the same color as one of the colors in the figure pattern.

Material and procedures: Example cards--each of four 2" x 3" example cards featured a different figured material, viz., dotted, flowered, striped, or checked. A small sample of the figured material was pasted at the top of the card. Below the material was pasted two solid colors, the same as those found in the figured material (see Exhibit 37 for an example of Figure Matching card).

Exhibit 37

Example of Figure Matching Card



Procedure for teaching subjects use of the card:

1) The four sample cards were placed on the table in front of the S.

2) E asked the S to point to all the solid colors on the table. The purpose of this was to determine if the S could discriminate solid from figured colors.

3) If the S could not make the discrimination, E taught it by explaining that solid colors do not have dots, checks, stripes, or flowers. Then E placed swatches of material on the table, one at a time, and asked the S if it were a solid color.

4) Incorrect responses were corrected immediately, and the definition of a solid color (as stated above) was repeated.

5) Correct responses were reinforced with a mark.

6) When S could make the discrimination (10 consecutive correct responses), E explained that only solid colors could be worn with figured colors, and, for example, only solid yellow, solid blue, or white could be worn with the blue and yellow figured material. The other three cards were explained in a similar manner.

Samples and matches--the sample and matches were swatches of various colors. Some were solid and others were figures.

Script for E--The order in which the swatches were used as samples for the match-to-sample procedure was listed on the script in Exhibit 38. The 20 choice items were listed. In items #1 - #13, the sample was a figured swatch and the correct choice sas a solid color also found in the figured swatch. The other choices were figured. In items #14 - #20, the three choices were solid colors although only the correct match was one of the colors found in the figured sample.

Procedure:

1) During the first 10 items, the example cards were available for the S to determine the correct match. The S looked at the example cards, and then made a choice.

2) E placed the first stimulus card in front of S. E: "Is this a solid color?" S: "No." E: "If you had a skirt of material like this (E points to the sample), point to the color you would wear for a blouse." (Ss could be reminded to refer to the sample cards.)

3) If the S made a correct response, E gave her one mark. If the S made an incorrect response, it was corrected immediately. E: "This material is folowered (point to sample card). You cannot wear dots with flowers or stripes. With flowers you wear a solid color. Which color is a solid color?" (Point to correct choice item.)

These directions were used for items one to 20. The procedure of data recording was the same as for color combination matching. The following procedures similar to those used for color matching were conducted for maintenance of skills learned during the program:

1) After completing the figure combination category of the clothing program, the Ss were given felt cut-out doll and clothes. They worked in groups of five or six for a period of 30 minutes. The clothes were either figured or solid colored skirts and blouses. The doll was placed on a felt board and the S chose appropriate figure combinations and color combinations with which to dress the doll. This procedure was meant to help the S generalize from the swatches of material used in the match-to-sample program, to actual clothes.

Exhibit 38

Figure Combination Matching
Script for Examiner

Sample Color	Choice Colors
1. flowered	1. solid, flowered, dotted
2. striped	2. solid, striped, dotted
3. checked	3. solid, flowered, dotted
4. dotted	4. solid, checked, striped
5. striped	5. solid, checked, flowered
6. flowered	6. solid, checked, striped
7. dotted	7. solid, flowered, checked
8. checked	8. solid, striped, cotted
9. dotted	9. solid, checked, striped
10. checked	10. solid, flowered, striped
11. striped	11. solid, flowered, dotted
12. flowered	12. solid, striped, checked
13. checked	13. solid, striped, dotted
14. flowered	14. solid, checked, striped (all choice colors same)
15. dotted	15. solid, flowered, solid
16. striped	16. solid, flowered, dotted
17. flowered	17. solid, striped, different flowers
18. checked	18. solid, flowered, striped (all choice colors same)
19. striped	19. solid, flowered, solid (one choice colors same)
20. dotted	20. solid, checked, solid (one solid color not matching the dotted color)

2) Aides and research assistants intermittently gave praise and/or points to Ss who wore appropriately matched colors. This was done to maintain the desired behavior.

4. Type Matching (Groups of five Ss) - The terminal goals of this category of the program were for the Ss to learn:
1) The three types of clothing and the places for each be worn.
2) The difference between summer and winter clothing.
3) The appropriate skirt and blouse ensembles.

Clothing List for Type Matching

Summer	Winter	Place
DRESS		
good dresses--light weight	good dresses--heavy weight	church
dress shoes--"flats" or "heels"	dress shoes--"flats" or "heels"	dates
hose	hose	parties
CASUAL		
dress--light weight	dresses--heavy weight	dining room
skirts--light weight	skirts--heavy weight	school
blouses--short sleeves	blouses--with sleeves	canteen
shoes--"loafers" or Keds, etc.	shoes--"loafers" or Keds	town
hose or anklets	hose or anklets	cottage
SPORT		
slacks--light weight	slacks--heavy weight wool, etc.	cottage
shorts		picnic
blouses--short sleeves or sleeveless	blouses--with sleeves	baseball
anklets	everyday shoes "loafers" or Keds	walks

Materials: The materials used were various articles of clothing from each S's wardrobe and pictures of activities:

Clothing

good dress
dress shoes
hose
everyday dress
everyday shoes
anklets
slacks
shorts
wool skirt
cotton skirt
sleeveless blouse
cardigan sweater
pull-over sweater

Pictures

party
church
dance
movie
dining room
canteen
town
picnic
cottage
baseball game

Procedure: The training sequence took five days for each group of Ss.

Day One--dress, casual, and sport clothing.
Day Two--places for each type of clothing to be worn.
Day Three--summer and winter clothing.
Day Four--skirt and blouse ensembles.
Day Five--a test for type matching.

Procedure for Day One: E discussed with Ss that clothing was divided into three types: dress; casual; and sport. E asked Ss the meaning of "dress clothes," and where they were worn. Articles of clothing were used to supplement discussion. Each S in the group was asked to pick out the clothing worn for dress.

This procedure was also used for casual and sport clothing. It was emphasized throughout the session that an article of dress clothing cannot be worn with casual or sport clothing, e.g., slacks.

Procedure for Day Two: Discussion of information taught during the first day. E discussed with the Ss that there were definite places for each type of clothing to be worn. Pictures of each place were shown to the S and the type of clothing appropriate for each occasion was discussed

Procedure for Day Three: Review of Days One and Two, i.e., discussion of the types of clothing and the occasion for which they were appropriate.

E discussed with the Ss that there was a difference between summer and winter clothing, and swatches of wool cloth and cotton cloth were used to teach the Ss the difference between heavy and light weight material.

The five Ss had been given directions concerning which items of clothing to wear to the session:

S 1, wool skirt and sleeveless blouse (inappropriate);
S 2, wool skirt and sweater (appropriate);
S 3, cotton skirt and heavy sweater (inappropriate);
S 4, cotton skirt and sleeveless blouse (appropriate);
S 5, shorts and heavy sweater (inappropriate).

Each S stood before the group and the other Ss were asked why the ensemble was appropriate or inappropriate. (Example: S 1 - wool skirts are worn in winter to keep warm and a sleeveless blouse is worn in summer to keep cool. Therefore, a wool skirt and a sleeveless blouse should not be worn together.)

Procedure for Day Four: The material presented in the last three sessions was reviewed in group discussion. Ss had been given ensembles to wear to the session:

S 1, gathered skirt and pull-over sweater (inappropriate);
S 2, gathered skirt and blouse, tucked in (appropriate);

S 3, straight skirt and pull-over sweater (appropriate);
S 4, gathered skirt and blouse, tucked in, with cardigan sweater worn open (appropriate);
S 5, straight skirt with hemmed blouse worn outside (appropriate).

Each S stood before the group and the other Ss were asked to state why the ensemble was appropriate or inappropriate. Incorrect responses were corrected and the question was repeated.

During the first four days of this program, Ss who participated in the group discussion received praise for correct answers and correction for incorrect answers.

Procedure for Day Five: The following test for type matching was administered to each S individually. Seventy five per cent correct and above was considered passing. Any S who scored below 75 per cent repeated the entire five-day program.

Materials needed:

Dress shoes
Tennis shoes
Work shoes
Dressy dress--full skirt
Casual dress
Slacks
Shorts
White sleeveless blouse
Sweater (pull-over)
Sweater (cardigan)
White blouse (short sleeve)

Procedures: Put these clothes in two piles; one for winter, and one for summer. Put these clothes in three piles; one for dress, one for casual, and one for sport. Dress program--E reads and records responses. S responds orally.

5. Type Matching Test

1. Name the three kinds of clothing.
   (A) Dress, casual, sport
2. Where would you wear dress clothes?
   (A) Church, party, dance, movie date
3. Where would you wear casual clothes?
   (A) Dining room, school, canteen, town
4. Where would you wear sport clothes?
   (A) Picnic, on cottage, sports activity
5. Do you wear hose with shorts?
   (A) No
6. Do you wear dress shoes with shorts or slacks?
   (A) No
7. Do you wear tennis shoes with shorts?
   (A) Yes
8. Do you wear pull-over sweaters or sweat shirts with full skirts?
   (A) No
   Why?
   (A) They make you look "sloppy."

9. Do you wear sweaters with shorts?
   (A) No
   Why
   (A) Sweaters are worn in winter. Shorts are worn in summer.

APPENDIX B

WALKING PROGRAM

Walking Program

The method of procedure for five of the 13 component areas of walking training was delineated as:

Area 1: Foot position when walking--toes forward.

- a. Example by instructor.
- b. Self and group evaluation of each girl's foot position as she walked, watching self in mirror. Immediate second attempt to approximate correct position.
- c. Manipulation by instructor of girl's feet to toes forward position.
- d. Reinforcement of successive approximations until all girls walked 20 feet toward mirror with toes forward on every step, holding ball and looking ahead.
- e. Practice procedures:
  - 1) Foot pattern of contact paper secured to floor in walking path of 20 feet. Girls walk directly on patterns, adjusting foot position to match patterns.
  - 2) Two lines of masking tape secured to floor eight inches apart, forming 20-foot path. Girls use lines as visual stimuli for approximating straight feet position when walking.
  - 3) Use of raised balancing beam. Girls walk placing entire foot on beam for each step (forcing straight feet position) and working for balance control.
  - 4) Use of musical stimulus (recordings and piano) to develop regular tempo and rhythmic response in walking.

Area 2: Foot placement--one foot almost in front of other with steps of appropriate size.

- a. Example of instructors.
- b. Self and group evaluation of each girl as she walked toward mirror.
- c. Girls followed natural lines in the tile floor, walking on one chosen line, looking ahead at the line over rubber ball.
- d. Reinforcement of successive approximations to proper foot placement, working gradually from visual stimulus control to complete sensory control.

Area 3: Lifting feet off floor--eliminate shuffling, dragging feet.

- a. Discussion and instructor demonstration of dragging feet versus lifting feet when walking.
- b. Self and group evaluation of each girl as she walked at right angles to mirror, watching and listening for feet dragging or shuffling.
- c. Girls imitate instructor, lifting knees high, similar to majorette walk, with hands on hips (march music).
- d. Taped lines on floor show girls where to put toe down in toe-heel walking (ball of foot not heel).

e. Reinforcement of successive approximations to toe-heel walk with ball in hands.
f. Repeated example by instructor of normal heel-toe walk with normal foot lift.
g. Reinforcement of successive approximation to normal heel-toe walk with normal foot lift.
h. Use of stacatto music as S^D for foot-lifting response.

Area 4: Light steps as opposed to heavy steps when walking.
a. Girls lie down on floor with backs to instructor and ears against floor. Instructor demonstrated auditory effects of heavy and light walking by walking approximately six feet away from girls.
b. Each girl took turns at walking in instructor's place. Girls on floor raised hand when they could hear her walk. (Instructor varies interval before silently signaling girl to begin walking past the line.)
c. Reinforcement of walking which could not be heard by girls on floor.

Area 5: Head up.
a. Group and self evaluation of each girl using mirror.
b. Spot of tape attached to wall at exact height of each girl's chin. Girl walked 20 feet toward spot, eyes always focused on spot, chin pointing to spot until chin touched spot. (Instructor manipulated head position if necessary.)
c. Girl walked 20 feet toward instructor maintaining eye contact with chin aiming at instructor's chin. Instructor's raising of chin became S^D for girl's chin raising. This was paired with an audio signal.
d. Girl walked 20 feet toward mirror, maintaining eye contact with self and using own reflection as S^D for chin raising. Instructor used audio signal here to indicate need for chin raising if girl's self evaluation was faulty.

APPENDIX C

EATING ETIQUETTE--CRITERIA

Eating Etiquette--Criteria

Clean hands, face, and nails: These areas must be washed just prior to the meal. There should be no traces of dirt, etc., on the face and special attention should be paid to the hands and around and under the fingernails.

Hair combed: Hair must look neat and be arranged so that it does not fall in the food or its containers.

Clean clothing: Clothes must look clean, be well-pressed and fit the individual. There should be no visible dirt, stains, etc., or any unpleasant odors.

Stands until hostess sits: S must stand behind her chair until everyone is around the table. When the hostess sits, all others may sit also.

Sits properly:

1. Foot position--Knees together, S's feet should be flat on the floor with one foot slightly ahead of the other.
2. Back posture--Back should be straight with buttocks against lower back of chair. Shoulders need not touch upper chair back.
3. Sitting procedure--With front edge of the chair even with the table edge, S enters her chair from the left side then moves the chair closer to the table.

Correct napkin placement: When the hostess takes her napkin, S lifts fork above her napkin, removes the napkin from the table, and replaces the fork. Using both hands, S opens the first two folds of the napkin, thus leaving it still folded in half. S then lays the napkin on her lap with the length of the napkin perpendicular to her legs.

Correct napkin usage: The napkin should be used to blot the lips and around the mouth to take up excess grease, moisture, or food. The fingers are to be wiped off with the napkin, if necessary.

The napkin is also used as a receptacle for food that is dropped in the lap or for food that has been put in the mouth but is not palatable. In the latter case, the corner of the napkin should be brought up to the mouth, inconspicuously, to receive the food and then be put back in the lap where that corner is folded inward to keep this matter in the napkin.

Replaces napkin correctly: When finished eating, S is to fold her napkin a couple of times and place it on the table to the left of the dish the last course was served in.

Correct hand placement: S should keep the hand not being used for eating in her lap. It may be taken from the lap and used when necessary (for holding bread, cutting, buttering bread, passing food, etc.).

Elbows not on the table: Elbows are never put on the table. It is permissable for the forearm to rest on the edge of the table for brief intervals during the meal.

Holds fork properly while eating: The fork is held in the right hand (for right-handed people) with the thumb laying across the top of the handle about 1½" from the end of the handle. The index finger is on the outside edge of the fork opposite the thumb. The fork handle rests on the side of the middle finger about ½" below the thumb and index finger

Holds fork properly for cutting: When used for cutting food the fork is held in the left hand, with the tines pointed downward into the food, with the curve of the tines inward toward the body. The top portion of the handle is supported by the second and third fingers with the thumb pushing against the side of the fork opposite these fingers. The index finger is extended forward to press downward on the shank of the fork.

Holds spoon properly while eating: Finger positions for the spoon are the same as those for the fork.

Holds knife properly while spreading: The knife is to be held in the right hand (again for right-handed persons) with the thumb against the inside of the handle of the knife. The index finger should be on the outside of the handle opposite and above the thumb. The remaining fingers are curved under the knife handle. The knife blade is held at an angle to the bread as the butter, etc., is spread on the slice.

Holds knife properly while cutting: When used for cutting, the knife is held basically the same as in spreading, except that the index finger is extended forward to exert pressure on the blade of the knife.

Uses correct cutting procedure: The fork and knife are held as described previously for cutting. The knife should make the cutting motion directly behind the fork tines. After cutting three or four pieces of food, the knife is laid, blade inward, on the upper right hand edge of the dinner plate. (Left hand side for left-handed persons.) The fork is then transferred to the opposite hand and held as described for eating as S continues her meal.

Uses fingers at proper times only: There are some foods that can be eaten with the fingers, for example, pizza, fried chicken, carrot and celery sticks, sandwiches, cookies, etc. The fingers must always be cleansed with the napkin after being used for eating.

Uses proper utensils at the right times: The knife and fork are used to cut pieces of food that are too large for one bite, into bite-sized pieces (approximately three-fourths inch square). The knife is also used for distributing all spreads on bread, rolls, etc. The spoon is used when eating those foods that are served in bowls, except salad, and for stirring drinks. Forks are used for eating those foods that are served on plates and for salads whether on a plate or in a bowl.

Can identify:

1) Butter knife - the blade of this knife is shorter than that of a regular table knife, the end of the blade is also more rounded.

2) Steak knife - this knife is sharper than a table knife and usually has a serrated blade edge.

3) Salad fork - the tines of this type of fork are shorter than those of a dinner fork.

4) Iced tea spoon - this spoon has a much longer handle and usually a smaller bowl than the other types of spoons.

5) Soup spoon - the bowl of this spoon is more round than other types of spoon.

Stirs drinks properly: The spoon is held by the thumb and the first and second fingers downward in the cup or glass. The spoon should not hit against the side or bottom of the drinking vessel as it stirs the liquid in a circular motion. The stirring process should not continue for more than a few seconds, six to seven turns around the cup or glass should be sufficient. When finished stirring, the spoon should be laid on the saucer on which the cup sits or on a plate if a glass is used.

Cools food properly: When foods are too hot to be eaten, they may be cooled by gently blowing over the top of a spoonful of food. Blowing over food while it is on the plate is not accepted. The same applies to soups as well.

Asks for food properly: When asking that something be passed to her, S is to say, "Please pass the . . ." Upon receiving whatever she has asked for, her response should be, "Thank you."

Passes food properly: To begin passing food around the table, S should pass it to her left. When someone asks for something to be passed them, S should pass it to the left also, unless the person is much closer to her right.

Takes appropriate sized bites: The amounts of food that are put into the mouth should be small enough to fit easily into the mouth with plenty of room to close the teeth and lips and chew the food sufficiently.

Chews with mouth closed: S's lips must be closed while chewing food. Mouth or cheeks should not have to bulge to allow this.

Clears mouth before talking: Mouth is to be emptied of food or liquid before S begins to speak.

Clears mouth before drinking: The mouth is emptied of food and lips are blotted with a napkin before S takes a drink. If this is done, no food or grease will be left on the glass or cup rim.

Drinks properly: S's hands must be free of food or grease before picking up the drinking vessel. S then picks up the glass, places lower rim of it on her lower lip and the upper lip should touch the liquid, but not be covered by it. No gulping, slurping, or any other unnecessary noises should be made during the drinking process. If the drink is taken properly, no liquid will be left on the upper lip.

Uses appropriate voice level: No loud talking, or whispering should take place during the meal.

Appropriate conversation topics: No nauseating topics are to be discussed while at the table, nor are any arguments to be started or continued at this time. Only pleasant topics should be discussed.

Replaces utensils in proper place: The used utensils are to be laid on the dinner plate with the handles on the rim of the plate. One exception is the dessert fork which is left on the dessert plate.

Excuses self properly: If S has to leave the table during a meal or before everyone else is ready to leave the table, she is to excuse herself by saying, "Excuse me, please."

Replaces chair: After the meal is finished and S leaves the table, she is to push her chair up to the table before going.

Sets table properly:

1) Dinner plate - this plate is placed in center of each individual eating area, about one inch from the edge of the table.

2) Napkin - this is placed to the immediate left of the dinner plate, with the border inward toward the plate.

3) Forks - these are laid on the napkin with the tines upward. When a separate salad fork is used, it is laid to the left of the meat fork.

4) Knives - they are laid to the right of the dinner plate, with blades inward toward the plate.

5) Spoons - spoons are placed to the right of the knife, first the soup spoon then the dessert spoon. Handles of all silver should be placed one inch from the edge of the table.

6) Glass - placed directly above the knife with about three inches of space between them.

7) Cup and saucer - these utensils are placed to the right of the spoons with the cup handle parallel to the table edge.

8) Salad plate -placed to the left and slightly above the forks.

9) Dessert plate - placed to the left of the forks.

APPENDIX D

HAND SEWING PROGRAM

Hand Sewing Program

The initial instructions include:

1) Sewing on buttons
2) Simple running stitch
3) Threading needle and knotting thread
4) Use of straight pins
5) Basting hem in place
6) Hemstitching hem

A follow-up program is tentatively planned involving actual construction of articles, using the sewing machine.

The procedure followed:

1) Sewing on buttons
   a. Chose button and thread of matching colors.
   b. Instructor demonstrated needle-threading and double thread knotting, providing each girl with her own threaded needle.
   c. On marked area of material, insert needle into wrong side of material and pull thread through until stopped by knot.
   d. Thread button onto needle through one of the holes; bring button down thread to lie flat on material where mark indicates button to be placed.
   e. Hold button in place on material with left hand (if right handed), insert needle into hole of button opposite to hole already sewn, and pull thread through.
   f. Repeat procedure, inserting needle into alternate holes, pulling thread tight each time.
   g. After six complete cycles, secure end of thread by overstitching an area on the wrong side of the material directly under the button. Overstitch: point of needle is inserted into material and back through same side, securing not more than 1/8" of material onto needle. Thread is pulled through.

2) Simple running stitch. Preparation of material--Using a strip of cardboard, marked off at ½" intervals, girls mark material in straight lines with dots as a guide to needle insert placement.
   a. Instructor demonstrates method of holding material with left hand, stitching with right (for right handed girls).
   b. Begin first stitch by inserting needle into material; pull thread through until stopped by knot.
   c. Insert needle into right side of material, through dot next to first stitch.
   d. Begin making one stitch at a time, progressing to two, then three at a time before pulling thread through.
   e. Secure end of thread by making three overstitches and cut thread close to material. (Overstitches follow line of running stitch and are no longer than 1/8".)

3) Threading needle. Practice holding spool properly with left hand to unwind thread to appropriate length for sewing job, and cutting thread to desired length.

- a. Hold needle in left hand (if right handed) in vertical position with eye of needle on top.
- b. Dampen end of thread with tongue and lips to stiffen it.
- c. Holding thread between thumb and forefinger of right hand, guide thread end through eye of needle.
- d. Pull thread through, approximately two-thirds of the length of the thread.

4) Knotting thread

- a. Hold thread in left hand several inches from end.
- b. Hold end of thread between thumb and forefinger of right hand.
- c. Wind thread twice around forefinger of right hand.
- d. Holding thread in place with thumb and forefinger, use second finger to pull knot to end of thread.

5) Use of straight pins

- a. Place material on table, smooth out with hands.
- b. Place one inch strip of material on top so that edges meet.
- c. Holding area to be pinned with thumb and forefinger of left hand, leaving two inch space or more between thumb and forefinger, with palm of hand facing self, insert pin in center of two inch space, and force through material and back out (pin following line parallel with edge of material) securing not more than one-half inch of material onto pin.
- d. Repeat "c" at two inch intervals, (using marked strip of cardboard as guide) until entire strip is pinned to underlying material.

6) Basting hem in place

- a. Preparing material for hemming.
  - (1) Crease edge of material under one-fourth inch first with fingers, then with iron.
  - (2) Use marked strip of cardboard to fold hem 1½ inch in width, securing fold with straight pins at 3" intervals one-half inch from interior hem edges.
  - (3) Correct any bunching or uneven areas by replacing pins until folded hem lies smooth and even.
  - (4) Insert a pin between every two pins so that hem edge is secured at 1½ inch intervals.
- b. Basting
  - (1) Following procedure for simple running stitch, baste in a straight line directly under pin line.
  - (2) When hem is completely basted, remove pins.

7) Hemstitching hem
   a. Holding material in left hand, bottom edge toward left, insert point of needle downward into material just above the hem edge.
   b. Catch hem edge with point of needle with upward motion and pull needle and thread through.
   c. Pull thread with right hand away from self along hem edge; hold thread in place approximately one inch in front of first stitch with thumb and forefinger of left hand.
   d. Start second stitch one-half inch from first, repeating steps "a" and "b" catching thread being held as well as hem edge with needle.
   e. Continue hemstitching, steps "a", "b", "c", and "d" until hem is completed.
   f. Remove basting stitches by cutting thread at 10 inch intervals and pulling thread out.

APPENDIX E

MACHINE SEWING PROGRAM

Machine Sewing Program

Step I - Machine preparation

1) Opens lid and lays it back.
2) Pulls the panel back and up.
3) Pulls machine head up.
4) Raises head until cord is pulled out.
5) Puts wooden panel down.
6) Puts head down.
7) Plugs cord into electrical outlet.
8) Switches on machine light.

Goal: Prepares machine in preceding sequence.
Reinforcement: Receives marks on card.

Step II - Sitting posture (test item #1)

1) Sits against the back of chair.
2) Sits straight with both feet on floor.

Goal: Sits properly at machine.
Reinforcement: Receives marks on card.

Step III - Discrimination of thread color (test item #2)

Goal: Matches thread color to material.
Reinforcement: Receives marks on card.

Step IV - Threading machine (test item #3)

1) Places spool on spool pin.
2) Holds thread in left hand.
3) Places right hand on spool of thread on spool pin.
4) Pulls thread across the machine head and down in hook.
5) Pulls spring up until the thread is caught in the spring.
6) Pulls thread up and through the take-up lever eye.
7) Pulls thread through the hole directly under needle screw and catches it in hook.
8) Pulls thread from hole on right side of needle through to the left side, and places the thread between the foot.

Goal: Threads the entire machine in preceding sequence.
Reinforcement: Receives marks on card.

Step V - Threading the bobbin (test item #4)

1) Puts fingers on bobbin-case slide door, presses down and pulls door open.
2) Holds bobbin in right hand with thread on top and holds thread out with left hand.
3) Puts bobbin into the case.
4) Pulls thread into slot.
5) Holds bobbin steady with right forefinger and pulls thread down until a click is heard.
6) Pulls thread to notch and across machine.

Goal: Threads bobbin in preceding sequence.
Reinforcement: Receives marks on card.

Step VI - Bringing thread up through throat plate

1) Selects the thread coming from needle.
2) Left hand holds thread coming from needle and right hand is placed on hand wheel.
3) Right hand turns wheel inward, moving lever all the way down, and returning to top where hand stops turning wheel.
4) Pulls thread inward.
5) Sees the loop.
6) Puts finger in middle of loop and pulls until loop is pulled through.
7) Holds thread together, puts left forefinger in front of presser foot and back. Thus, the thread is between and behind the presser foot.

Goal: Brings thread up through throat plate and pulls thread between and behind the presser foot.

Reinforcement: Receives marks on card.

Step VII - Winding bobbin (test item #5)

1) Places spool of thread on bobbin spindle, and leads thread under the bobbin disc.
2) Puts bobbin on the bobbin pin.
3) Holds bobbin still with left hand and turns bobbin wheel inward until bobbin slips into small hole.
4) Places left hand on spool and leads thread with right hand.
5) Leads thread up and through hole in bobbin.
6) Pushes lever down and releases bobbin latch.
7) Completes the preceding sequence for threading machine to wind bobbin.
8) Holds hand wheel steady with left hand and turns balance wheel inward with right hand. Places foot on foot-control lever and starts machine until needle is locked. If needle does not move, it is locked.
9) Holds thread hanging from bobbin in left hand until machine starts to wind.
10) Places right foot on foot lever and presses until machine starts. When bobbin is full, machine stops automatically, If less than a full bobbin is required, foot is removed from foot lever at appropriate time.
11) Cuts thread between bobbin and spindle of thread.
12) Tightens balance wheel by putting left hand on hand wheel, and turns balance wheel outward with right hand until it will not turn.
13) Unthreads the machine.

Goal: Threads and winds bobbin by completing preceding steps for winding bobbin.

Reinforcement: Receives marks on card.

Step VIII - Placing material under presser foot (test item #6)

1) Places material under presser foot.
2) Pulls hand wheel inward with right hand, while moving material with left hand, until the needle goes into the material at the point where sewing is to begin.
3) Pulls presser-bar lifter down to keep material from moving from side to side.

Goal: Completes preceding sequence.
Reinforcement: Receives marks on card.

Step IX - Foot control acceleration and deceleration (test Items #7 and 8)

1) Unthreads entire machine.
2) Selects from two buttons under machine the one which controls the operating speed of machine.

Goal: Demonstrates correct control of foot pressure required by responding 15 times to verbal directives to sew fast, faster, slow, and slower.
Reinforcement: Receives marks on card.

Step X - Guides material with both hands (test item #9)

1) Places material under the presser foot, puts needle in at point to begin sewing, and puts presser foot down.
2) Puts foot on starting button and hand on hand wheel.
3) Turns hand wheel inward until needle starts to move.
4) Places left hand on material two to five inches to the right side of needle, and even with the end of the presser foot.

Goal: Guides material while machine is operating.
Reinforcement: Receives marks on card.

Step XI - Stopping machine (test item #15)

Goal: Holds hand wheel steady and removes foot from foot-control button.
Reinforcement: Receives marks on card.

Step XII - Putting machine in motion (test item #14)

1) Forward - pulls stitch-regulator lever downward.
2) Reverse - pulls stitch-regulator lever to top.

Goal: Puts machine in forward and reverse following verbal directive.
Reinforcement: Receives marks on card.

Step XIII - Using thread cutter (test item #13)

1) Puts material under machine and lifts lever.
2) Pulls material inward, taking both threads from material, placing them through and to back of cutter.

Goal: Pulls threads downward until they are cut.
Reinforcement: Receives marks on card.

Step XIV - Sews straight line (test item #10)

1) Repeats "a", "b", "c", and "d" in Step X (guiding material).
2) Sews forward three or four stitches following a premarked guideline on material and stops machine.

3) Places machine in reverse and sews back on same line to point where sewing began; stops machine.
4) Puts machine in forward motion and sews to the end of the premarked guideline; stops machine.
5) Puts machine in reverse and sews back three or four stitches on sewing line; stops machine.
6) Puts machine in forward motion and sews to the end of the sewing line.

Goal: Remove needle from material, lift lever, and cut thread.
Reinforcement: Receives marks on card.

Step XV - Sewing a curved line (test item #11)
1) Repeats "a", "b", and "c" in Step XIV.
2) Puts machine in forward motion and guides material until coming to the end of a premarked curved guideline; stops machine.
3) Repeats "e", "f", and "g".

Goal: Same as in Step XIV.
Reinforcement: Receives marks on card.

Step XVI - Turning a corner (test item #12)
1) Repeats "a", "b", "c", and "d" in Step XIV.
2) Raises lever.

Goal: Turns material so that forward motion results in following premarked guideline.
Reinforcement: Receives marks on card.

Step XVII - Stores equipment (test item #16)

Goal: Places all equipment in predetermined section of sewing area.
Reinforcement: Receives marks on card.

APPENDIX F

IRONING PROGRAM

Ironing Program

1. Small flat articles (example: handkerchief).
    a. Press edges smooth.
    b. Press from bottom right edge in toward center in continuous stroke across entire article and back to right edge (for right handed subjects).
    c. Move iron up right edge to next unironed section and across entire article and back.
    d. Continue in this fashion until entire article is ironed.
    e. Fold article in half and lightly iron.
    f. Fold once or twice if necessary, and again iron over lightly.

2. Flat article longer but not wider than surface of ironing board (example: narrow sheet or pillow case).
    a. Place top edge of article along top edge of ironing board.
    b. Press top edge and as much as possible of side edges smooth.
    c. Press as in "2-a".
    d. Move article up to next unironed section and iron as in "2-a".
    e. Continue moving article up and ironing edges first, then moving in from edge toward center until article is completely ironed.
    F. Fold to appropriate size and lightly press.

3. Flat article longer and wider than surface of ironing board (example: large sheet).
    a. Fold article in half.
    b. Place one of narrow edges along top of ironing board and proceed as in "2" until entire one side is ironed.
    c. Turn article to other side and proceed as above.
    d. Fold to appropriate size and press lightly.

4. Straight A-line skirts.
    a. Holding skirt by hem, pull skirt onto the board so that one side of skirt, by the zipper or buttons, is above the surface of the ironing board and smooth with hand.
    b. Press zipper or material around buttons firmly.
    c. Place iron on hem of skirt with point of the iron toward waistband. Make a series of movements the length of the skirt from hem to waistband, back to hem, turning the skirt as ironed until the entire skirt is free of wrinkles.
    d. If there is a kick-pleat, smooth appropriately with hands and press.
    e. Remove skirt from board and place it on board again with waistband slipping on first. Iron waistband and three or four inches of skirt below the waistband.

5. Gathered skirts.
    a. Place skirt on board as in "4".
    b. Press zipper or material around buttons firmly.

c. Place iron on hem with point of the iron toward waistband. Make a movement from hem toward waistband as far as gathers, then press between gathers in line with the movement.
d. Turn skirt as ironed until entire article is free of wrinkles.
e. Remove article and place it on board again pulling waistband on first. Iron waistband smooth.

6. Sleeveless blouse.
a. Place collar on board, underneath side up, iron and turn collar to top side and iron.
b. Place blouse on narrow end of board so the end protrudes from arm hole and shoulder seam up. Iron shoulder seam and as much of blouse as possible.
c. Switch blouse so as end of board protrudes from other arm hole and repeat step "6-a".
d. If blouse has yoke, place it smoothly on board and iron.
e. Place one front section of blouse with buttons on board.
f. Iron edge around buttons and entire front section.
g. Iron sleeve edge on front section.
h. Turn blouse so side seam is on board. Press as much of sleeve edge as possible.
i. Turn blouse to back so as to iron the rest of sleeve edge. Iron from button edge of back up to yoke or to collar, whichever the case, until the entire back section is free of wrinkles including back sleeve of other arm hole.
j. Turn blouse so other side seam is on board and press.
k. Turn blouse to other front section and iron.

Simple blouse with sleeves.
a. Repeat steps "a", "b", and "c" of section "6".
b. Place one sleeve on board. Crease along under arm seam. Smooth sleeve and press. Special attention is given to cuffs. Iron up to over-shoulder seam.
c. Place other sleeve on board and repeat step "b" above.
d. Proceed with steps "a", "b", and "c" of section "6".

8. Dress.
a. To iron top of dress follow steps "a", "b", "c", and "d" of section "7".
b. To iron skirt follow steps of section "4" if straight or A-line, and follow steps of section "5" if gathered.
c. If needed, press belt.

APPENDIX G

PUBLICATION

"MIMOSA COTTAGE: EXPERIMENT IN HOPE"

ing and hollering behavior is strengthened and fear of the horse and of things associated with it remain.)

One cannot predict which classes of behavior will be strengthened by negative reinforcement, but it is certainly clear that excessive avoidant behavior can restrict the range of interactions available to a child. In many instances the interactions that are terminated may be needed for further development (speaking, for example), and the situations that are avoided may be critical to a normal child-rearing environment (such as those involving the father) and may affect other similar aspects of the environment (all male adults). Thus, stimuli and responses that were not directly involved in the aversive interaction may come to have aversive properties in themselves.

Third, aversive stimuli may evoke physiological responses (such as gastric reactions to a fear-producing event) that affect biological functioning of the child and thereby reduce his potential for serviceable interactions.

While the consequences of strong aversive stimulation are most frequently discussed in the literature of child psychopathology under the heading of severe emotional disturbances (referred to as psychoneurotic, psychotic and autistic), they are discussed here because aversive stimulation also retards development. Just as biological anomalies and social insufficiencies limit opportunities for development, so do strong avoidant reactions. All three foreclose many occasions for a child to make new adjustments.

I have singled out for discussion here the retarding effects of abnormal anatomical structure and functioning, inadequate reinforcement and discrimination histories, reinforcement of undesirable behavior, and severe aversive stimulation. There are, however, other processes. For example, there is the possibility that the termination (say, through death) of interactions with a mother figure after a strong affection bond has been established can have strong retarding effects. It can weaken or even eliminate well-established behavior by removing the cues on which the behavior depended. It should be emphasized, however, that these other processes do *not* include assumed conditions such as "defective intelligence," "clinically inferred brain damage" and "familial factors."

MIMOSA COTTAGE: Experiment in Hope

By James R. Lent

Parsons, Kansas, is an unremarkable town inhabited, for the most part, by unremarkable people. One of them is a girl named Ellen, who helps care for the elderly patients in the community nursing home where she works as a nurse's aide. At home, Ellen does her share of the housework; she prepares and serves the meals and babysits with the youngest member of the family, her six-year-old foster brother.

Today, Ellen's life is not very different from the lives of millions of unskilled and semiskilled workers in the United States, but that has not always been so. Five years ago, Ellen entered Mimosa Cottage at Parsons State Hospital and Training Center, a school for mentally retarded girls with measured I.Q.s from 25 to 55. When she arrived, at the age of 14, Ellen was unable to tell time, count money, or find her way from the dormitory to the dining room alone. Now, at 19, she is a semi-self-sufficient member of the community.

The Mimosa Cottage Demonstration Project, conducted since 1965 by the Parsons State Hospital and Training

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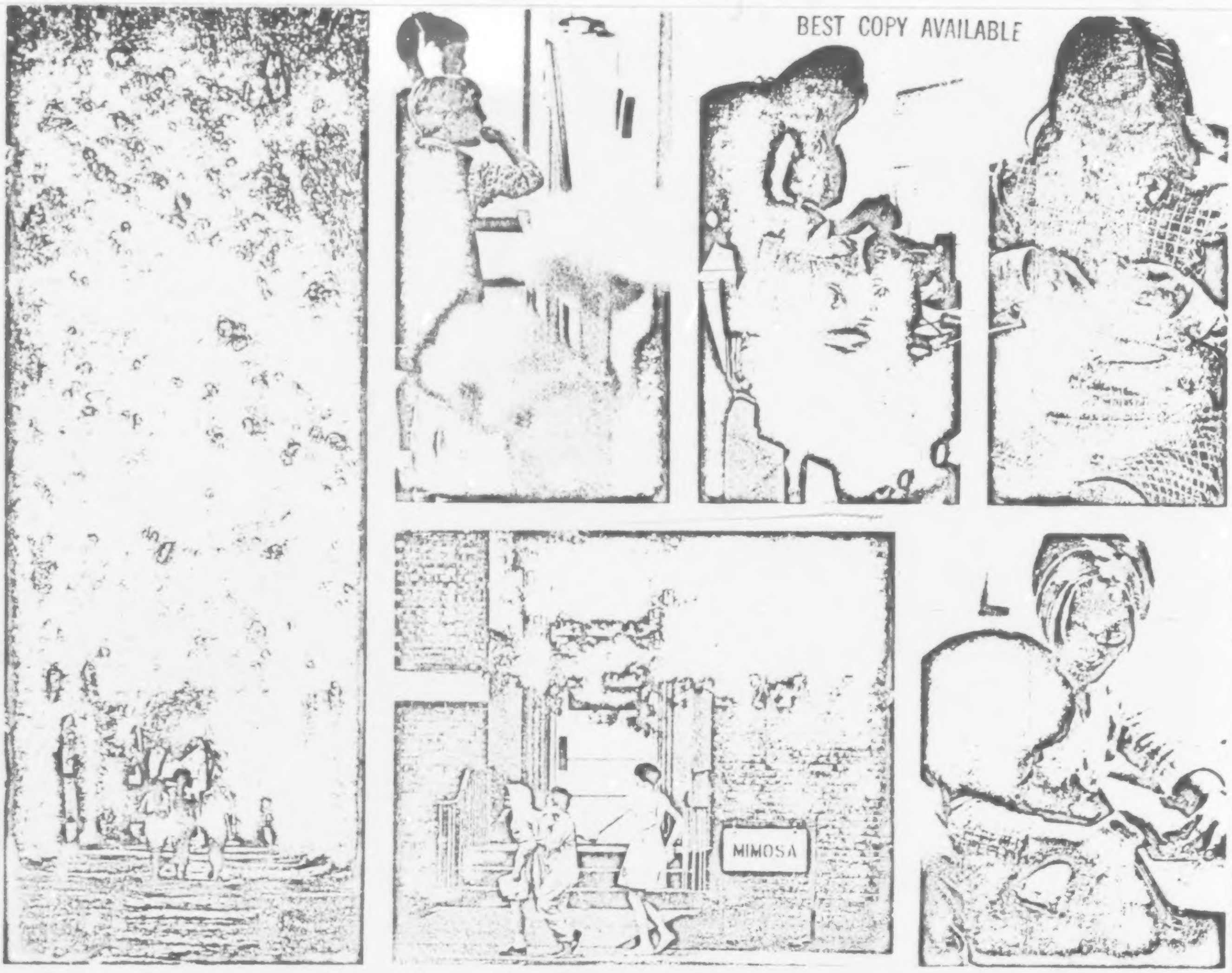
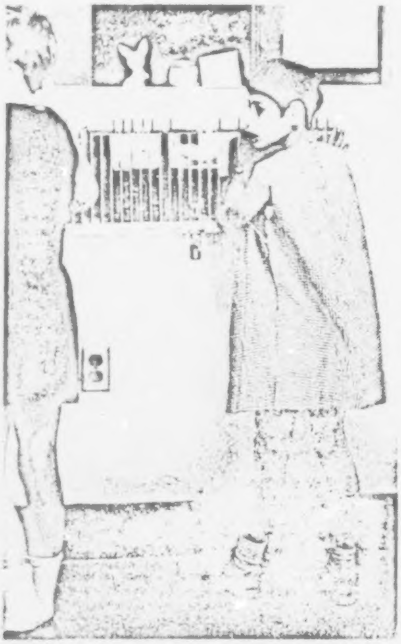


SYSTEMATIC TRAINING. At Mimosa Cottage the girls are trained in personal, domestic and occupational, social and academic skills (top). For appropriate behavior they are rewarded with tokens—in this case, British halfpennies—which they save in banks attached to the cottage wall (right).

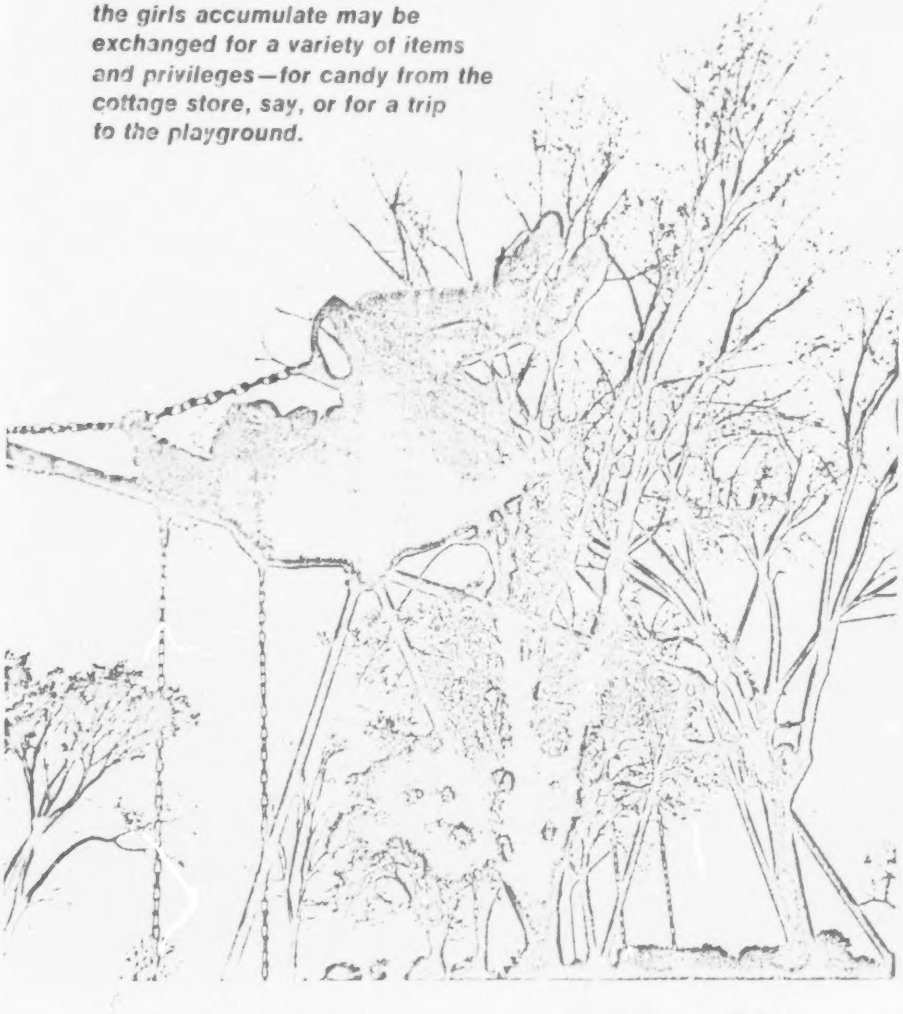


Center and the University of Kansas Bureau of Child Research, is a program designed to modify the behavior of mentally retarded girls between the ages of eight and 21. Its overall goal is to train the Mimosa girls to behave as much like nonretarded members of the community as possible. Many girls, like Ellen, will be able eventually to live in the community. Others will continue to require care in an institution, but their adjustment to institutional life should be smoother as a result of the training they have received.

There are 71 "trainable" mentally retarded girls living in Mimosa Cottage. They are housed on three floors, according to age. On the bottom floor, Mimosa A, the girls are eight to 12 years old. Mimosa B, the middle floor, includes girls from 12 to 16. On the top floor, Mimosa C, are the older girls, aged 16 to 21. The overall goals are the same for all three groups. However, the reinforcement systems and the training programs differ in difficulty and complexity to reflect the different developmental levels of the three groups of children.

The basic method of the program is operant conditioning [*see "The Mentally Retarded Child," page 47*], which is based on the premise that the receipt of a reward or reinforcer for specific behavior increases the probability that similar behavior will occur in the future. During the initial stages of the project, research assistants observed the dress and behavior of the people in the community, and the specific aims of the program were formulated from those observations.

***TOKENS FOR TRADE.* The tokens the girls accumulate may be exchanged for a variety of items and privileges—for candy from the cottage store, say, or for a trip to the playground.**



The program includes four general training categories: personal appearance, occupational skills, social behavior and functional academic subjects. Each of these is broken down into small and carefully defined behavioral components. These small components are the first objects of training. As the program proceeds, they are built into increasingly complex units of behavior.

As reinforcers to support the training, we use tokens—generalized rewards that can be exchanged for items and privileges ranging from food and cosmetics to movies and dances. To serve its purpose, a reinforcer must have value for the person who receives it. Thus our first task with each group of girls is to teach them that the tokens have value.

At first, we do not reinforce with tokens at all. Instead we offer non-token rewards such as candy for desired behavior. Gradually, we substitute tokens for food. When the tokens are first used, we allow the girls to exchange them for food immediately. Then we increase the time between token exchanges. Eventually, we are even able to introduce saving by requiring several tokens for certain purchases.

Like the token system itself, the behavior for which tokens are given becomes more and more complex as training proceeds. It might be necessary at first, for example, to reward a girl for taking the smallest step toward painting a picture—for approaching the easel, say, or for touching the paintbrush. Later, the girl receives tokens only when she has painted for some time. Still later, the activity itself may become desirable and therefore reinforcing, and we can *require* tokens for the privilege of participating.

The tokens we give the younger girls (on Mimosa B) are coins—British halfpennies—which they keep in a bank attached to a wall of the cottage. They may spend the tokens for privileges, such as the use of a record-player, or for items stocked at the cottage store. The cottage store, which resembles a small variety store, is an excellent place to teach the girls the behavior appropriate for shopping downtown. They must dress suitably, for instance, and they must communicate to the adult in charge what it is they want to buy. Depending on a girl's abilities, she is required to point to an item, to imitate its name after the adult in charge has said it, or to ask for it in a complete sentence.

The older girls on Mimosa C use a somewhat more abstract token-and-banking system. Their tokens take the form of marks on a gridded point card. The points on one side of the card can be redeemed for money; those on the reverse are "privilege points" that permit certain activities. Once a week, on Bank Day, the girls receive the amount of money shown on the financial side of their cards, money that they may keep themselves or, if they prefer, bank under lock and key. At the same time, their privilege points are recorded for use later on.

The money the older girls earn is spent in downtown Parsons—experience that helps shift the control of their behavior from extrinsic reinforcers to the normal reinforcers found in the community. To be eligible for a trip downtown a girl must have privilege points, and to make purchases she must use her own money. Thus she must have accumulated both kinds of tokens in order to "afford" an outing.

When a girl refuses to do a specific

task or displays extremely deviant behavior, tokens may be taken away from her. Behavior that leads to the removal of tokens is called "costly behavior." One advantage of this system is that there is no need for emotionalism on the part of the staff. Without reprimands, nagging or scolding, the adult simply removes the tokens.

It is important to keep the cost of goods and privileges realistic by comparison to community standards, and to accustom the girls to no more purchasing power for recreation than unskilled workers ordinarily have. Daily records of tokens received and spent allow us to make changes to meet the needs of individual children and, if necessary, to shift the level of the entire economy to offset depressions and inflations. This can be done by changing the quotas on token delivery, by changing the prices of articles stocked in the cottage store, and by changing the cost of activities.

The training itself includes personal skills such as cleanliness, grooming, and sitting and walking in ways that are appropriate to a non-institutional community; domestic and occupational skills such as those needed to care for a house and to do simple repetitive work like that required in a sheltered workshop; social skills such as interpersonal relations and attitudes; and educational skills such as time-telling, arithmetic, vocabulary and reading. A few examples will show how the training is done, and with what results.

Many of the Mimosa girls wear clothing that does not fit and is in poor condition. In part, the reason is the circumstances of institutional living–budget limitations, clothes sent by parents or issued by the institution without an opportunity for the girls to try them on. In addition, however, the girls do not know how to match colors and patterns or how to select styles that are appropriate for different occasions. These skills can be improved by training.

We begin by taking baseline data on each girl's level of skill without training. A test movie is shown of girls wearing various outfits. As each picture appears on the screen, the adult in charge describes the clothes ("This is a plain white blouse and a plaid skirt.") and asks, "Do they match?" Then training begins. The staff member shows the girl different-colored cards and swatches of material and gives her a token when she matches them correctly. More complex matters follow, such as the proper use of checks and plaids and the choice of clothing appropriate to the season. At the end of the training, the test movie is shown again.

The results of the clothing program as a whole show some improvement in all areas. In three of the categories, color matching, type matching and appropriateness to the occasion, our test showed significantly fewer errors after training than before. In the categories of figure matching and proper fit, however, the distribution of scores indicates that the program needs improvement. It is being revised this year.

Another fairly obvious deficiency in the personal appearance of the Mimosa girls is their hair, which is often poorly combed, inappropriately styled and dirty. Part of the problem is poor habits, but almost all the girls also lack skill in setting and combing, and they cannot identify hair styles that are suitable for them or for different social occasions.

One evening a week, a beautician from the community comes to the cottage and shows the girls how to style, set and care for their hair. At first, the girls receive tokens each time they groom their own hair. Once they learn to do this regularly, the tokens are faded out and replaced with more natural consequences, such as beauty contests, polaroid pictures and praise from an adult or from another girl.

Townspeople from Parsons can often tell the Mimosa children from other children in the community simply by the way they walk. So we devised specific corrective programs for each small motor movement involved in walking. Many of the girls, for example, walk with their heads forward and down. To correct this, we use the following procedure.

A piece of tape is attached to the wall at the exact height of the girl's chin, and the girl is asked to walk toward the spot from 20 feet away, keeping her eyes focused on it and pointing her chin at it. If necessary, the instructor places the girl's head in the proper position manually. Later, the girl walks toward the instructor instead of the spot of tape, maintaining eye contact and aiming her chin at the instructor's. When the girl holds her chin too low, the instructor signals that fact by raising his own chin. At the same time, an audio signal sounds. Finally, the girl walks 20 feet toward a mirror, maintaining eye contact with her own reflection and using the mirror to determine whether she needs to raise her chin. If her self-evaluation is faulty, the audio signal is used.

In addition to head position, the walking training includes five other components. Data taken at the end of 1966 showed considerable improvement in all six areas.

Not too surprisingly, good results obtained in training sessions do not always generalize to other life settings. Currently, we conduct the sessions on walking with a background auditory stimulus presented at a tempo of 116 beats per minute. Later, outside the training sessions, the auditory stimulus will be presented intermittently for short periods of time in the hope that the walking patterns established in training will be re-evoked. In the meantime, we have received a bonus. Performance during training has improved simply because the girls must always walk at the selected tempo. One hundred and sixteen beats per minute is an average walking speed, and walking and posture errors apparently are exaggerated when the pace is noticeably slower or faster.

Domestic skills such as sewing, ironing, housekeeping and cooking are built up in the same gradual way as motor skills like walking. Sewing, for instance, begins with needle-threading and button-sewing and progresses through straight-line sewing to, for many girls, machine-sewing. Several girls have been able with little help to make shifts, dresses, jumpers and slacks. They choose and buy their own patterns, lay them out, cut the material, and sew the garments on the machine.

In the writing of all such training programs, the most useful rule we have discovered is: Do not assume that the subject will be able to generalize. This means that training programs must be written in far greater detail and much more explicitly than teaching plans for children of higher mental ability. It also means that what the girls learn to do in the cottage they may not do outside the cottage–in a home, in a job or in a community store. Some problems with generalization can be foreseen and prevented. For example, housekeeping training begins in the model living area at the cottage and continues in more intensive and more complex form in homes in the community.

Other problems with generalization must be taken up individually as they occur, which may not be until after the girl has left Mimosa Cottage to live in the community. A girl who has been trained to recognize stewed tomatoes in a certain kind of can, and to read prices marked in a certain numbering style,

***THE CHOICE.** This girl has used her tokens to buy candy—and decided to share it with a staff member and a friend.*

may have trouble when she confronts the array of tomato products stocked by the usual grocery store. If she cannot generalize, she must be retrained—not only on tomatoes, but on beans, corn and a variety of other products.

Like most institutionalized retarded persons, the girls at Mimosa have limitations, often severe, in such behavior as speech, social attitudes and heterosexual interaction. For this reason, training in social skills is an important concern of the cottage program.

Leisure-time activities, some individual and some group, show the children how to entertain themselves and teach them to get along with one another. The games and activities must have absolute carry-over value, that is, they must be the same things many people in the community do to occupy their time—puzzles, card games such as canasta and solitaire, dominoes and checkers, jacks.

Dances are organized for the girls from Mimosa Cottage and for retarded boys from a nearby cottage. The dances offer an opportunity for instruction in social manners, and in posture. Many of the girls show poor posture when sitting or standing, and they do not really know how to begin or end a dance. Training includes nine steps, beginning when the girl is asked to dance and ending when she tells her partner she enjoyed the dance. The instructor tells the children the behavior expected of them and uses marks on their reinforcer cards to indicate that they have performed satisfactorily. At the end of the dance session, the children can use the marks they have earned to attend a special party, where cookies and punch are served.

Our experience with this program taught us something about the selection of target behavior. All the children in the first two classes attained criterion behavior, and we were pleased that the program was serving its purpose. However, in reviewing a movie of a training session, we suddenly noticed that the session did not look like a teen-age dance. The children's manners and movements were more similar to those of middle-class, middle-aged persons. At this point, the middle-aged author designed a new program on the basis of actual observations of teen-age dances held in the community.

Instruction in heterosexual association and sex hygiene is a regular part of the social training. It is frank and to the point. An illustrated program covers the fundamentals of reproduction, in addition, again with boys from another cottage, the girls are taught what is proper and what is not and what is proper in some places but improper in others.

Although the measured I.Q.s of the Mimosa girls classify them as trainable rather than educable, many of them are able to acquire basic academic skills. Instruction in arithmetic, time-telling, phonics and reading has been initiated with individuals and small groups, and the procedures are being analyzed and improved as we gain experience.

All programs, with one exception, have been developed by the project staff, since published materials have not proved useful with trainable (as opposed to educable) children. The Rainier Reading Program developed by Sidney W. Bijou and his colleagues is the one available program that we have been able to use with the Mimosa girls.

The development of speech and language skills in the Mimosa girls is one of our most important goals. The articulation improvement program carried out with 10 girls on Mimosa C for the past year will illustrate.

The method of therapy was such that learning was acquired gradually and surely. A set of 10 words was presented to each girl by means of picture cards. Her verbal responses to the cards were our baseline data. Then we evoked responses by means of simple, concrete stimuli and gradually shifted to more abstract, more natural means of evoking responses. The sequence was (1) auditory-visual (word and picture); (2) visual stimuli (picture card); (3) grapheme (printed word); (4) intraverbal stimuli (a sentence with a missing word to be supplied by the girl). As a final test, we presented words that contained the same sound elements as those used in training, but had not themselves been used. This was a partial measure of generalization.

Nine of the 10 girls did significantly better on the post-test than on the pretest for each set of 10 words, and were able to generalize the effects of training to new words with considerable success. The 10th girl made few errors to begin with, and therefore did not make significant gains.

One final type of training that should be mentioned is that used to remedy the specific behavioral problems of individual girls. For instance, one 14-year-old resident of Mimosa Cottage made a practice of placing rocks, beads and other small objects in her ear canal. She did so with such force that the objects could not be removed except by medical specialists. We tried to find out just what circumstances preceded and followed the girl's behavior, but it was not possible to identify a pattern. We did discover, though, that the doctors and nurses at the hospital where she was taken for treatment took care of her almost immediately, and expressed great sympathy and concern. It seemed that this process might well be maintaining the behavior.

Since irreparable damage had already been done to the child's ear drum and ear canal, the hospital agreed to try anything that might reduce further damage. The next time the child placed an object in her ear, the cottage aide said, "All right, see me about it tomorrow. I'm busy now." The next day the child was sent by herself to the out-patient clinic, where the only attention paid to her was that her name was taken down by a nurse. Three hours later she was seen by the doctor, who treated her in a very matter-of-fact manner and assigned her to a recovery room. She stayed there for two weeks, by herself; her only contact with the staff was at meals, bed change, and clean-up time, and these encounters were brief.

After the behavior modification procedure began, there was one further incident and then an abrupt cessation for eight months. At that time, the child was called for a hearing examination. She prepared herself for the occasion by placing a bead in her ear. Since then there have been no further incidents.

Using the same principles of behavior, and similar techniques, several other individual behavior problems have been successfully modified. Many of these problems are quite ordinary, such as tantruming and loud talking. Others are more bizarre—a girl who smeared butter over her face and clothing at meal time; a girl who stole food from other children's trays; a girl who tore her shoes at the seams; a girl who talked incessantly and incoherently to herself and to others. In many instances it was possible to discover events that typically followed the child's behavior and maintained it. Modification then involved manipulating the environment in such a way that reinforcement was no longer provided. In addition, we tried to arrange for the child to develop an alternative—a desirable response that was incompatible with the undesirable one. For instance, there are children who only get attention from adults when they are screaming or yelling. Training adults to ignore the tantrum is half the job, training the child to get attention in desirable ways is the other half.

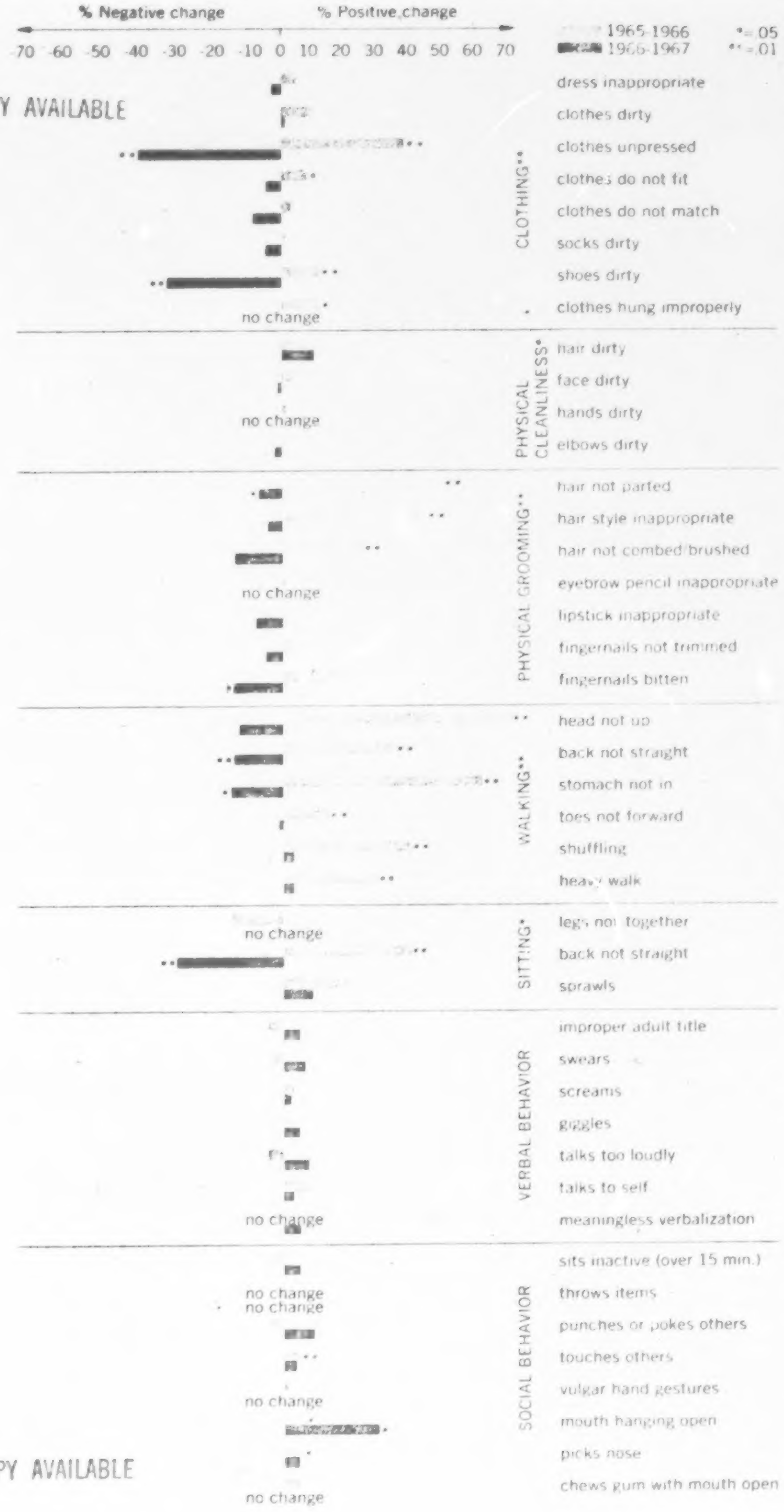
People who hear about the Mimosa project often have questions to ask, some about its design and some about its "ethics." Here are a few of the ones we hear most often, and the answers we give.

"Couldn't time rather than training be responsible for changes in the girls' behavior?" Several studies, conducted in this country and abroad, have shown that institutionalization has a crippling effect on the behavior of retarded children. Their behavior tends to deteriorate with time, not to improve. For example, L. F. Cain and S. Levine of San Francisco State College gave a social competency test to trainable retarded children living in institutions and to similar children living at home. They found that the scores of the children living at home rose with the passage of time, while those of the institutionalized children decreased significantly.

"Isn't it hard for aides to act natural, spontaneous and 'happy' with the children when so much behavior is prescribed?" When aides first start reinforcing on a schedule, their behavior is somewhat mechanistic and stilted. However, they soon become accustomed to giving reinforcement and they are, after all, pleased when a child behaves appropriately. As the training takes effect, the children behave appropriately more and more often, which reinforces the staff and makes them "happy." The children, in turn, are reinforced by the quiet, predictable, pleasant behavior of the adults in charge.

"Doesn't it seem *wrong* to pay a girl to do something she should do for nothing, like comb her hair?" Well, the alternative is to *punish* the girl when she does *not* comb her hair, which seems wronger and is also less effective. Positive reinforcement is the best way we have to establish new forms of behavior. Once the behavior is established, tokens can be phased out and natural reinforcers substituted.

"Are you sure you chose the right goals for the girls?" Behavioral principles themselves are amoral. They can be used to prepare a child to vegetate in an institution, or to prepare him for life in the community. What we do is use them to reach goals on which most members of the community agree. For example, most people in Parsons agree that it is better for an adolescent girl to know how to cook and sew than not to know how to cook and sew. Most agree that it is better for a girl to say



OPERATION BEHAVIOR MODIFICATION. After the first year of the Mimosa training program (1965-1966) the personal skills of the retarded girls had improved, in general, but their verbal and social behavior had not. After the second year (1966-1967), during which training in verbal and social skills was emphasized, the reverse was true.

"please" when she requests something than not to say "please."

"Isn't the program terribly expensive?" Yes, the program is expensive. It costs about $35,000 per year more than regular hospital treatment. However, if it trains a girl to support herself outside an institution for the rest of her life, it will save the taxpayer about $100,000.

The final question, of course, is "How well does the program work?" The answer is that it works fairly well, and we keep trying to make it work better. During 1965-1966, the girls improved considerably in such personal skills as care of clothing, physical cleanliness, physical grooming, walking and sitting. However, there was no overall improvement in verbal or social behavior. This meant that the training procedures, or the reinforcement system, or perhaps both, needed revision.

In 1966-1967, we shifted the emphasis of training away from personal skills and toward verbal and social ones. The space for verbal and social tokens on reinforcement cards was more than tripled, and aides were told to give more points for appropriate responses in these areas than they had the last year. In addition, aides and research assistants received supplementary training to develop their sensitivity to social behavior.

The change in emphasis worked almost too well; the pattern for 1965-1966 reversed itself in 1966-1967. Social and verbal behavior improved significantly, while personal skills held steady and even, in some cases, declined. The decline suggested that we had overreacted to the preceding year's results—although, since personal skills had already reached a high level, the decrease was not as serious as it might have been. [*See illustration, left.*]

Twelve of the Mimosa girls have now returned to the community. Five are too young to work and are living with their natural families. Seven are older and they are all working, full- or part-time. These older girls range from 20 to 69 in I.Q. and from 17 to 22 in age. They have spent between four-and-a-half and 12 years in institutions.

Some of these girls have rejoined their natural families, others have been placed in foster homes. They are not fully independent, but they are able to take care of most of their personal needs and to move about the community alone. One of them is Ellen and, like Ellen, all of them lead simple but productive lives. Those around them may even forget, at times, that they were ever labeled "mentally retarded." ∎

END